Planning Application and Environmental Statement
For the Reclamation of Bentinck Tip and Void

Response to Consultation

January 2008
SLR Ref: 403-0197-00299-004

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VOLUME 2

RESPONSE TO THE ENVIRONMENT AGENCY IN CONNECTION WITH THE PPC PERMIT APPLICATION

1.0 INTRODUCTION

Two identical planning applications were submitted on 20 October 2006 for the reclamation of land associated with the former Annesley Bentinck Mine, known colloquially as the Bentinck Tip and Void. These applications have been allocated the reference numbers 4/2006/0942 and 4/2006/0943 by Nottinghamshire County Council.

The main elements of the planning application are:

- the reclamation of around 50 hectares (ha) associated with the Bentinck Tip through the deposit of around 1.5 million cubic metres (Mm^3) of soils and other inert wastes;
- the reclamation of a further 18 ha associated with the Bentinck Void though the landfilling of around 4 Mm^3 of non-hazardous municipal, commercial and industrial wastes;
- reclamation of some 52 ha of peripheral land within the Tip and Void through the regrading of materials and spreading of soils and/or compost;
- the establishment of a compost maturation facility to handle up to 22,000 tonnes per annum of imported compost;
- the recycling (through crushing and screening) of imported inert wastes and the export off site of recyclable products; and
- the construction of a temporary access road linking the reclamation site to the A608, to the east of Junction 27 of the M1.

In addition, the planning applications includes proposals for ancillary development necessary to support the landfill and reclamation activities, including weighbridge, office accommodation and environmental management facilities (for the management of landfill gas and leachate).

In accordance with the provisions of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended), the planning applications were accompanied by an Environmental Statement ("*the ES*"). The ES is a new, freestanding document, in support of the new Bentinck application and as such it provides a wholly new assessment of the development proposals. In accordance with the provisions of Regulation 10[1], a request for a formal scoping opinion was made by SLR on 12 October 2004. This request set out sufficient details of the application site and the proposed development to enable consultees to consider the proposed scheme. Following a period of consultation, Nottinghamshire County Council provided its "*Scoping Opinion*" on 17 November 2004

In line with best practice, this new ES has considered the previous assessments and reports contained in the 1997 Terry Adams Limited ES, Technical Appendices and Addendum and the 1998 ES and Technical Appendices prepared for Midland Mining Limited[2]. Reports prepared for the original applications considered relevant to the new application have been retained for information purposes as background information to the new ES; however, they have been supplemented to include new technical data and assessment. As such, the Environmental Impact Assessment has been able to draw from data spanning many years.

In parallel with the submission of the planning applications to NCC, an application has been made to the Environment Agency (EA) for a Pollution Prevention and Control (PPC) Permit. The PPC permit application was made in January 2007 and comprises:

[1] The Town and Country Planning (Environmental Impact Assessment) Regulations 1999

[2] Planning Application and Environmental Statement. (MM/BE/HC/1012/02). M J Carter Associates. September 1998

- a 126 page application form;
- an environmental setting and installation design report;
- a hydrogeological risk assessment;
- a geotechnical risk assessment;
- a landfill gas risk assessment; and
- a nuisance and health risk assessment.

As such, the PPC permit application assesses the likely risk of pollution and harm to the environment, setting out the day to day environmental controls and protocols. As such, the PPC permit application is supported by a number of quantitative assessments. In determining the PPC application for the site, the EA will have to take account of the representations of statutory consultees such as the Health Protection Agency and the Food Standards Agency. The EA will only issue a PPC permit if they are satisfied that no significant risk is posed to health or the environment.

In view of the two regulatory regimes, there is inevitably some overlap; specific guidance is set out in Planning Policy Statement 23. Referring to ***paragraph 1.48*** of the ES, paragraphs 2 and 10 (and paragraph 27 of PPS10) state that the planning and pollution control systems are separate but complementary in that both are designed to protect the environment from the potential harm caused by development and operations, but with different objectives. In recent years, increasing awareness of environmental priorities has led local planning authorities to take a greater interest in controlling potentially polluting activities. Yet, at the same time, the effectiveness and scope of environmental protection legislation has expanded rapidly. Paragraph 2 of PPS23 also provides that the planning system should not operate so as to duplicate controls which are the statutory responsibility of other bodies (including local authorities in their non-planning functions). The role of the planning system focuses on whether the development itself is an acceptable use of the land rather than the control of the processes or substances themselves. It also assumes that the pollution control regime will operate effectively. Planning controls are therefore not an appropriate means of regulating the detailed characteristics of potentially polluting activities.

In accordance with the statutory provisions Nottinghamshire County Council (NCC) has consulted on the planning application and responses have now been received from all consultee organisations. The consultation process has raised a number of issues, ranging from seeking clarification upon the proposals to the provision of additional information to enable a detailed consideration of the proposals to be made. NCCs letters of 19 February 2007, 2 March 2007, 13 March 2007 and 20 March 2007 provide an overview of the main issues to be addressed, copies of which are contained in Annex 1/1.

The following sections of this document address the consultation responses received and provide NCC with additional information to determine the planning applications. For ease of identification, references to paragraphs, tables and drawings in the ES are shown in ***italic and underlined*** font. Supplemental information to the main body of this document is contained in a series of Annexes, to avoid confusion with the Appendices of the ES. In terms of format and layout of this document, SLR has liaised with NCC: NCCs email dated 21 September 2007 comments that:

"*Regarding the format and layout of the response, concerns have already been raised, particularly by members of the public, about the size of the application, particularly the environmental statement although I recognise that all relevant issues need to be thoroughly addressed. However, this issue could be exacerbated by further submissions resulting in cross-referencing being required between numerous documents. Therefore, the County Council would wish to see further submissions prepared so that they could be slotted into the*

existing environmental statement. Such submissions would therefore need to make it clear what paragraphs are being replaced (i.e. if paragraph 1.1 is being amended, then the replacement paragraph should be called 1.1a). If an additional paragraph is required between paragraphs 1.1 and 1.2 for example, this should be called paragraph 1.1.1. If the amendments are more substantial, you might wish to consider reproducing whole sections of the environmental statement in full so that the existing section can be removed in its entirety. Whatever format you choose, the submission should include an explanatory note setting out how the additional information should be read alongside the original environmental statement".

In relation to the PPC permit application referred to above, further information has already been submitted to the EA in response to queries raised. As is set out in detail in Section 7 below, this information is also sufficient to address the EAs consultation response to the planning application. This document therefore comprises two Volumes: the first Volume sets out the formal response to the consultations received by NCC, whilst the second Volume contains the submission made to the EA on 13 September 2007 which is also being submitted to NCC in response to the EAs consultation.

The following sections in Volume 1 this document are structured as follows:

3. Operational aspects of the development	Providing additional information and clarification raised by NCC and others.
4. Planning Policy	Addressing the issues raised in the report prepared for Ashfield District Council
5. Need, and Alternatives	Addressing the issues raised in reports prepared for Ashfield District Council and Selston Parish Council
6. Geology	Addressing the issues raised in the report prepared for Ashfield District Council
7. Hydrology and Hydrogeology	Addressing the concerns of the Environment Agency regarding the culvert.
8. Air Quality	Addressing the concerns of the Health Protection Agency and reports prepared for Ashfield District Council
9. Noise	Providing clarification on queries raised by the Ashfield District Council Environmental Health Officer
10. Traffic and Transport	Clarifying the points raised by the Highways Agency and County Highways Officer regarding HGV movements and detailed Access design
11. Landscape and Visual Assessment	Providing a response and clarifying a number of points raised by the County Landscape Officer
12. Ecology	Addressing the concerns of Natural England and Nottinghamshire Wildlife Trust, together with providing clarification for the County Ecologist
13. Archaeology	Addressing the comments of the County Archaeologist and English Heritage.

It should be noted that the above only makes reference to the consultation responses received from *technical* consultees (*i.e.* those with a particular technical expertise to advise NCC on the adequacy of the scheme for which planning permission is sought). Representations have also been made from a number of local organisations on a range of issues and vary in the depth of comment: some merely provide a list of concerns, whilst the response by "*Ashfield Against Landfill*" (AALF) provides a lengthy response to each of the ES Sections. In the main, addressing the issues raised by the technical consultees will address the concerns and comments of these organisations. However, where it has been

found that an issue has been raised that is not covered by one of the technical consultees, reference is made and a response provided. The absence of any reference to these organisations should not therefore be interpreted as an omission.

Within each of the following sections, the general format has been adopted:

1. Introduction and identify main consultation responses and issues raised.
2. Provide a commentary of the issues and response to the consultation.
3. Provide new text for insertion into the main body of the ES, either in replacement, or addition to the information contained therein.
4. Provide new drawings and appendices to the ES where appropriate.

Finally, in view of the consultations received, it has been necessary to produce some new drawings to illustrate the development proposals. Allied to this, the requests for further ecological survey work have meant that new appendices are required to contain this information. As a result, the Contents pages of the ES have been updated and are presented on the following pages.

Consolidated Drawing List for the ES

Note: Text in **Bold** type face denotes new drawings contained in this Document. All other Drawings are contained in the November 2006 Environmental Statement

Drawing Number	Title	Scale
Section 2		
Drawing BC 2/1	Site Location Plan	1:25,000
Drawing BC 2/2	Application Site and Surrounding Area	1:10,000
Section 3		
Drawing BC 3/1	Proposed Site Configuration	1:5,000
Drawing BC 3/2	Phasing of Tip Reclamation Works	1:4,000
Drawing BC 3/3	Basal landform and Landfill Infrastructure	1:2,500
Drawing BC 3/4	Void Landfill – Phase 1	1:4,000
Drawing BC 3/5	Void Landfill – Phase 2	1:4,000
Drawing BC 3/6	Void Landfill – Phase 3	1:4,000
Drawing BC 3/7	Void Landfill – Phase 4	1:4,000
Drawing BC 3/8	Void Landfill – Phases 5 and 6	1:4,000
Drawing BC 3/9	Void Landfill – Phase 7	1:4,000
Drawing BC 3/10	Void Landfill – Phase 8	1:4,000
Drawing BC 3/11	Void Landfill – Phase 9	1:2,500
Drawing BC 3/12	Void Landfill – Phase 10-12	1:5,000
Drawing BC 3/13A	**Restoration Scheme**	**1:5,000**
Drawing BC 3/14	Access Road Plan and Sections	Various
Drawing BC 3/15	Access Road Landscaping Concept	1:2,000
Drawing BC 3/16	Cross Sections of Restoration Scheme	1:5,000
Drawing BC 3/17	**Haul Road Access from Layby**	**Various**
Drawing BC 3/18	**Emergency Services Access and Maintenance Access**	**Various**
Section 6		
Drawing BC 6/1	Regional Geology	1:50,000
Drawing BC 6/2	Geological Cross Section	1:25,000
Section 7		
Drawing BC 7/1	Groundwater Vulnerability Map	NTS
Drawing BC 7/2	Local Hydrology and Hydrogeology	NTS
Drawing BC 7/3	Existing Surface Water Drainage System	1:5,000
Drawing BC/7/4	Flow Direction Analysis	1:9,000

Section 11

Drawing BC 11/1	Existing Highway Network	1:25,000
Drawing BC 11/2	Road Accident Locations	1:25,000
Drawing BC 11/3	**M1 Off Site Landscaping Works**	**Various**

Section 12

Drawing BC 12/1	Photo Viewpoint Location Plan	1:25,000
Drawing BC 12/2	Relevant Landscape Designations	1:25,000
Drawing BC 12/3 - 6	Principal Viewpoints 1 - 8	NTS
Drawing BC 12/7 - 9	Secondary Viewpoints A - F	NTS

Section 13

Drawing BC 13/1	Protected Sites Plan	1:25,000
Drawing BC 13/2	Phase 1 Habitat Plan	1:6,000
Drawing BC 13/3	Phase 1 Habitat Plan – Proposed Access Road	1:5,000

Consolidated List of Appendices for the ES

ES Appendices Volume 1

Note: **bold** type face denotes a new appendix. All other Appendices are contained in the November 2006 Environmental Statement

Appendix Number	Description
6/1	Agricultural impact assessment for Bentinck site and Agricultural land classification report for Bentinck haul road
7/1	Assessment of ground conditions
7/2	Bentinck culvert
7/3	**Sustainability Appraisal for Culvert**
8/1	Odour assessment
8/2	Relevant legislation and guidance (air quality)
8/3	Health Assessment
8/4	**Landfill Gas Risk Assessment**
10/1	Plant teams and sound power levels
10/2	Noise level predictions
11/1	Traffic count data for A608
11/2	Reported road traffic injury accident reports
11/3	Proposed traffic generation and predicted traffic flows
11/4	PICARDY
11/5A	**Analysis of Accident Data**
11/6	**Capacity assessment of Junction 27**
15/1	Assessment of the potential impact of the development on lane end mushroom farm

ES Appendices Volume 2
Ecology Appendices

Note: **bold** type face denotes a new appendix. All other Appendices are contained in the November 2006 Environmental Statement

Appendix Number	Author	Description
Appendix 13/1	Carter (1998)	Application for Planning Permission for the Restoration of Bentinck to Forest Park by the Landfilling of Controlled Wastes etc. M.J. Carter (1998)
Appendix 13/2	Wessex (1999a)	Interim Report: Amphibian Survey, Bentinck Void. Wessex Ecological Consultancy (1999)
Appendix 13/3	Wessex (1999b)	Annual Ecological Report: Amphibian and Water Vole Surveys, Bentinck Void. Wessex Ecological Consultancy (1999)
Appendix 13/4	Wessex (2000a)	Status Report: Ecology, Bentinck Void. Wessex Ecological Consultancy (2000)
Appendix 13/5	Wessex (2000b)	Site to North of Bentinck Void Ecological Value, Constraints and Potential for Enhancement. Wessex Ecological Consultancy (2000)
Appendix 13/6	HRA (2001)	Assessment of Nature Conservation Value, Bentinck Void. Humphries Rowell Associates (2001)
Appendix 13/7	AERC (2001)	Ecological Surveys, Bentinck Void. Applied Environmental Research Centre (2001)
Appendix 13/8	AERC (2002)	Ecological Management Plan, Version 1. Proposed Landfill and Restoration at Bentinck Void. Applied Environmental Research Centre (2002)
Appendix 13/9	Kilshaw (2002)	Ecological Surveys, Bentinck Void. Richard kilshaw Ecological Services (2002)
Appendix 13/10	Kilshaw (2003)	Ecological Surveys, Bentinck Void. Richard Kilshaw Ecological Services (2003)
Appendix 13/11	AERC (2003)	Receptor Site Assessment and Phase 1 Habitat Survey, Bentinck Void. Applied Environmental Research Centre (2003)
Appendix 13/12	Godfrey (2003)	Invertebrate Survey, Bentinck Void. Andy Godfrey Invertebrate Consultant (2003)
Appendix 13/13	AERC (2004a)	Protected Species Surveys, Bentinck Void. Applied Environmental Research Centre (2004)
Appendix 13/14	AERC (2004b)	Phase 1 Habitat Survey, Tip Area Adjacent to Bentinck Void. Applied Environmental Research Centre (2004)
Appendix 13/15	Compiled SLR (2004)	Recorded Bird Species List (1997-2004). Various sources
Appendix 13/16	NBGRC (2004)	Designated Sites Table Statutory Sites (SSSI) Citations within 2km SINC within 2km - survey sheets and ecological information
Appendix 13/17	Wessex 1998	Bentinck Void - Supplementary Ecological Report (July 1998)
Appendix 13/18	AERC (2005)	SSSI Damage Assessment Bentinck Void (2005)
Appendix 13/19	AERC (2005)	Protected Species Survey Bentinck Void (2005)
Appendix 13/20	AERC (2005)	Protected Species Survey The Pit Area (2005)

Appendix Number	Author	Description
Appendix 13/21	AERC (2006)	SSSI Damage Assessment Bentinck Void (2006)
Appendix 13/22	AERC (2006)	Protected Species Survey Bentinck Void (2006)
Appendix 13/23	AERC (2006)	Protected Species Survey The Pit Area (2006)
Appendix 13/24	Compiled SLR (2006)	Great Crested Newt Survey (2006)
Appendix 13/25	**SLR Consulting Ltd**	**Survey and evaluation of early-flowering annual plants, colliery spoil, re-vegetating areas of Annesley Woodhouse SSSI, aquatic plants and Bentinck void slopes, specifically orchids and tufa springs.**
Appendix 13/26	**SLR Consulting Ltd**	**Survey and evaluation of water vole at the site. Includes information relating to surveys undertaken between 1999 and 2007 at the site.**
Appendix 13/27	**SLR Consulting Ltd**	**Survey and assessment of Bentinck Culvert. Collation of bats recorded during other night time survey work.**
Appendix 13/28	**SLR Consulting Ltd**	**Survey and evaluation of the site for the presence of badgers and habitats which may support this species.**
Appendix 13/29	**SLR Consulting Ltd**	**Survey and evaluation of the presence of breeding birds at the site.**
Appendix 13/30	**SLR Consulting Ltd**	**Survey and evaluation of wintering birds at the site.**
Appendix 13/31	**SLR Consulting Ltd**	**Survey and evaluation of the presence of great crested newts at the site.**
Appendix 13/32	**SLR Consulting Ltd**	**Survey and evaluation of the presence of reptiles at the site.**
Appendix 13/33	**Peter Kirby on behalf of SLR Consulting Ltd**	**Survey and evaluation of invertebrates present within the site and the habitats which support them. A complete list of invertebrates recorded is also provided.**
Appendix 13/34	**SLR Consulting Ltd**	**Evaluation of the potential impacts of the proposed composting facility upon the two SSSI's located within 1km.**
Appendix 13/35	**SLR Consulting Ltd**	**A strategy for ecological mitigation and long-term management of Bentinck Tip and Void, including habitat creation, protected species mitigation and monitoring plan for the site.**

2.0 THE SITE

2.1 Introduction

Little comment has been raised in connection with the description of the application site contained within *Section 2* of the ES.

Of the responses, AALF state that the land use is incorrectly described. They consider that the site can not be described as "*derelict*", but describe it as an "*undeveloped area extremely rich in wildlife …*".

AALF also pass comment on the OS data used in the ES, stating that it is out of date.

2.2 Commentary

It should be noted that the current form of the application site has resulted from the open cast extraction of coal (within the Void) and disposal of colliery waste (within the Tip). As such it can not be termed "*undeveloped*": this would infer a greenfield site.

The nature conservation interest within the site has been acknowledged in the 2006 ES. *Section 2* of the 2006 ES does not provide a description of the ecological interests, but directs the reader to *Section 13* where the ecological habitats are described in detail within the text and supporting appendices (*paragraph 2.1* refers).

Whilst the SINC is a land use planning designation, it does not confer an actual use of land: the site is not being actively managed for nature conservation.

In relation to the OS data, it should be noted that the EIA process can take many months to complete. For the current applications, the EIA process commenced in c.2004 and the OS data was purchased at that time. OS data itself, when purchased, is not always up to date, as it is reliant upon a programme of updates. Whilst AALF allude to a number of developments in the area, they are all located further from the proposed development than the nearest receptors considered in the ES. In considering the potential environmental impacts a development may have, it is normal practice for mineral and waste management developments to assess the impacts at the nearest receptors surrounding the site, as this provides the worst case assessment. The exception to this would be for an Energy from Waste plant, where emissions to air are a major consideration.

2.3 Proposed Changes to the ES

No changes are considered necessary.

3.0 OPERATIONAL ASPECTS

3.1 Introduction

Further information and clarification has been requested by a number of consultees regarding the development proposals. These focus on access arrangements to the site; the status of the access road once landfill operations have ceased; and the final restoration of the site. *Section 3* of the ES sets out the detail of the proposed development for which planning permission is sought. In addition to the information contained in the ES, this document provides information on:

- the detailed access arrangements for the junction with the lay-by on the A608;
- emergency access into the site off Salmon Lane;
- removal of the access road on completion of landfill and restoration works, together with the provision of an access of Salmon Lane for site maintenance works; and
- final restoration of the site.

The information provided within this section is supplemental to that contained in the ES, and thus this document is to be read alongside the 2006 ES. Moreover, the information contained in this document does not provide for any material change to the original submission.

3.2 Commentary

3.2.1 Access off the A608

Details relating to the proposed site entrance are set out on *Drawing BC 3/14* and described in *paragraph 3.83* of the ES. *Paragraph 3.84* then provided that the detailed design of the entrance would be submitted as a "*reserved matter*". NCCs letter dated 2 March 2007 requested the detailed design of the proposed site entrance off the lay-by on the A608, showing the proposed ingress and egress, together with the vertical alignment. In this respect, the Highways Authority requested a plan with sections showing the proposed access and egress.

NCC also commissioned a safety audit of the proposed junction, a copy of which was forwarded to SLR on 6 July 2007. SLR responded to this audit on the 17 July 2007: this is considered further in Section 11.3 below.

Based on level data from a topographic survey undertaken in April 2007, SLR has produced a detailed design of the proposed entrance, based on the outline design shown in the ES. This design is illustrated on **Drawing BC 3/17** and is contained at the end of this section. This design has been forwarded to the Highways Authority for comment: SLRs letter of 17 July 2007 refers (see Annex 11/1). On 25 July 2007 SLR met with the Highway Authority to discuss the design and was advised that the Highway Authority had no objection to the design.

3.2.2 Emergency Access off Salmon Lane

In NCCs letter dated 19 February 2007 commented that "*there is likely to be a greater chance of cyclists or pedestrians using Salmon Lane to access the site and you should make provision for such an access from this road. The access would not allow access by motorised transport except perhaps for emergency services*".

The proposals in the 2006 ES made no provision for access of Salmon Lane, with sole access to the site being via the entrance to be constructed off the lay-by on the A608 (see 3.2.1 above). The rationale for this was to discourage any HGVs from using Salmon Lane.

The issue of an access off Salmon Lane was also discussed when SLR met the Highways Authority on 25 July 2007. Following this meeting, SLR has designed an access off Salmon Lane for use primarily by pedestrians and cyclists, but also would allow access for emergency vehicles. The design of this access is shown on **Drawing BC 3/18** (left hand panel**)**.

It is stressed that this access would have restricted use and would be kept locked at all times (save for the pedestrian access, which would be unlocked during the operational hours). In view of the infrequent use, if any at all, by motorised vehicles, the inclusion of this access would not have any material impact upon the conclusions of the EIA.

3.2.3 The access road between the A608 and the site infrastructure

Again, NCCs letter of 19 February 2007 raises two issues in relation to the access road. Firstly, clarification is sought to the construction, and in particular, the surfacing of the access road and secondly, its use in the longer term.

As noted in NCCs letter, *paragraph 3.82* of the ES states that the access road would be "*hard surfaced*". The Highway Authority then comment that "*dependant upon the materials used, it may be necessary to install additional wheel wash facilities near the A608 … If an unbound material is proposed, then the road surface for 50m from the junction with the A608 should be in a bound construction …*".

The reference in the ES to "*hard surfaced*" should be interpreted as meaning constructed from bituminous bound materials (tarmac). For the avoidance of doubt, the length of the access road from the junction with the A608 to the weighbridge/reception area would be constructed with a tarmac pavement and suitably drained (as illustrated on *Drawing BC 3/15* in the ES).

In relation to the second point, concern has been raised over the retention of the access road in the long term, given its location within the Nottingham/Derby green belt.

Access to the landfill site would be required for some time after the site had been restored for purposes of maintenance. This would be in respect to *inter alia* restoration planting and landfill gas and leachate management infrastructure. However, the frequency of visits would be very low, typically being 2 per day. In addition, the landfill gas powered generators would periodically need to be changed and finally removed from the site.

The ES envisaged a down grading of the access road following completion of the restoration works. However, in considering the request for an emergency access to the site (refer to Section 3.2.2 above), consideration has also been given to modifying the emergency entrance on completion of the restoration works to allow vehicular access to the site. This is illustrated on **Drawing BC 3/18** (right hand panel).

It would therefore be proposed to completely remove the access road between the A608 and the site following completion of restoration works (being the replacement of soils, cultivation and seeding/planting). At the same time, the emergency access would be modified to allow access from the east.

3.2.4 Public Rights of Way

NCCs letter of 19 February 2007 sets out some considerations regarding public rights of way. In particular:

- Consideration of accommodation works
- Need to show correct line of reinstated footpath on restoration plan
- Formal dedication of footpaths
- Some of public rights of way should be bridleways

In connection with the restoration scheme, it is noted that the line of the reinstated footpath shown on *Drawing BC 3/13* does not accord with the actual definitive line. Drawing BC 3/13A, which shows the revised restoration proposals, also shows the line of the public footpath reinstated on its original line, which crosses part of the Bogs Farm Quarry SSSI.

If it is generally felt that the proposed footpaths should be formally dedicated as public rights of way (as opposed to permissive paths) then the applicant would seek to promote the necessary public path creation orders. Similarly, the applicant is agreeable to upgrading some of the paths to bridleways. It is considered that such detail could be covered through either a planning condition or Section 106 legal agreement.

3.2.5 Final Restoration of the Site

NCCs letter of 20 March 2007 passes comment on the restoration proposals, and in particular the value of habitats created compared with those lost through the development, and sets out a number of areas where the restoration scheme should be amended.

In view of the comments, a new restoration scheme has been prepared and is included in this document as Drawing BC3/13A. Allied to this, new supporting text has been provided to replace that contained in the 2006 ES: this text is set out in Annex 3/1 to this section.

3.3 Proposed Changes to the ES

In connection with the ES, the following changes are proposed for *Section 3*

i) Add Drawing BC3/17 "*Detailed Access Design*" to the Section

ii) Add Drawing BC 3/18 "*Emergency Services Access/Maintenance Access*" to the Section

iii) Replace Drawing BC 3/13 with Drawing BC 3/13A

iv) In connection with the access road, paragraphs *3.82 to 3.86* are replaced with the following:

"Access Road

3.82A In order to avoid HGVs using unsuitable roads through residential areas it is proposed that the site be accessed by a new, 1.6 km long, 7.3 metres wide, purpose-built, private haul road between the site and the A608. The road would be hard surfaced with either concrete or bituminous bound materials (tarmac) for its entire length between the A608 and the site reception infrastructure, and would

incorporate all necessary drainage measures. The line of the road is illustrated in Drawing BC 3/14, together with cross sections, whilst drainage measures are shown on Drawing BC 3/15.

3.83A At its southern end, it would intersect the A608 at a lay-by some 200m east of Junction 27 of the M1. The proposed design is illustrated conceptually on Drawing BC 3/14, with the detailed horizontal and vertical alignment of the junction illustrated on Drawing BC 3/17. The design reflects that shown on Drawing 9194/003 (dated February 1998) prepared following consultation with Nottinghamshire County Council by JMP Consultants Limited for Viridor Waste Management Ltd. The current design (ref. to Drawing BC 3/17) and has been slightly modified following more recent consultation with the County Highway Authority, and in particular, following receipt of a Stage 1 Safety Audit. The design incorporates separate slip roads for the ingress and egress of traffic on and off the east-bound carriageway of the A608 at opposite ends of the lay-by, thereby leaving the use of the lay-by unaffected by the access. The line of the access road between its junction with the A608 and the Bentinck Site is similar to that proposed in the original Terry Adams Limited application, as shown on Plan No 3 (dated September 1997 and prepared by Symonds Travers Morgan) within the 1997 Supporting Statement. Notwithstanding this, the design of the access road (vertical and horizontal alignment, together with extent of cut and fill) shown on the drawings accompanying this planning application are based on designs produced by SLRs Highways Engineers using highway and land modelling computer software.

3.84A At its northern end the access road would enter the site in a cutting passing beneath Salmon Lane by underbridge, outline details of which are again shown on Drawing BC 3/14. It is proposed that precise details of the design of the underbridge be submitted as part of a Section 278 Highways Agreement.

3.85A The access road would be fenced on both sides by appropriate stock proof fencing. Soils stripped from the line of the road would be placed in screen mounds according to the soil type and located adjacent to the road. These mounds would typically be 2m in height and would not exceed 3m. New hedgerows would also be established as described further in this Section and Section 12 (Landscape and Visual Impact). Footpath No. 8 crosses the access road and appropriate stiles or “kissing gates” would be provided to maintain access, with appropriate signage installed to advise both drivers and pedestrians of the crossing point. The alignment of the road has been designed to closely follow the motorway corridor and minimise the “*severance*” of agricultural land. Where land has been severed, the landscaping proposals seek to enhance the ecological value through *inter alia* planting and creation of ponds and wetland areas. This is considered further in paragraph 3.106A below.

3.86A The access road would provide sole vehicular access to the Bentinck Site for the duration of landfill operations and associated restoration works. Notwithstanding this, an emergency access to the site would also be constructed off Salmon Lane: this entrance would be kept locked at all times and would only be available to the emergency services. During the hours of operation, pedestrian access would be available off Salmon Lane via a lockable gate, designed to prohibit access to motorcycles. Drawing BC 3/18 shows the design of this entrance. On completion of the infilling operations, the access road would be removed and the land restored to

agricultural use; planting carried out along the western edge of the access road would be retained. The emergency access would be converted such that vehicular access off Salmon Lane was only possible from the east and would be used by vehicles associated with the management, maintenance and monitoring of landfill gas and leachate. Ultimately, once the environmental management infrastructure was removed from the Bentinck Site, the access off Salmon Lane could be removed."

v) Replace paragraphs *3.100 to 3.146* with the text in Annex 3/1 of this Document.

4.0 PLANNING POLICY

4.1 Introduction

Planning Policy considerations are set out in *Section 4* of the ES.

Ashfield District Council commissioned White Young Green (WYG) to undertake a detailed assessment of *inter alia* the policy and need implications of the Bentinck planning application. The findings of this assessment are presented in WYGs report "*Bentinck Tip and Void - Detailed Assessment of Planning and Need Issues Submitted by Waste Recycling Limited"* dated March 2007.

A number of local organisations have also commented on policy, mainly stating that the adopted Waste Local Plan[3] (WLP) is out of date or "*expired*", and some question whether the planning application is premature in the light of the emerging Waste Development Framework (WDF).

This section will principally look at the comments made by WYG, which will also address the issues relating to the WLP raised by local groups, including AALF. As set out in the Introduction to this report, any changes or additions to the ES considered necessary will be highlighted at the end of the Section.

4.2 Commentary on WYG Report

4.2.1 Introduction

Page 2 of the WYG report provides a summary of their reasons why the planning application is flawed in policy terms. For ease of reference, this is set out below:

1. *The Nottinghamshire Waste Local Plan is out of date, and only covered the period up until 2004. The plan is currently under review, which will be completed in 2009. To grant planning permission for a major landfill facility in advance of the public examination on the plan will prevent proper consideration of the opportunities to recycle or recover this waste.*

2. *This application relies mainly on information from 2000 to 2003 and the applicants have not considered the annual monitoring reports for the period 1.4.04 - 31.3.06 that include recent data on waste management showing that the volume of waste landfilled is significantly reducing.*

3. *The applicant has failed to detail whether the composting maturation facility and the inert recycling facility comply with all the WLP policies, particularly relating to Green Belt issues.*

4. *Only one reference is made to any European Directive and this is only in passing to note the derivation of national policy. Insufficient emphasis or importance has been placed on the wording of the Nottinghamshire County Council scoping opinion.*

5. *The differences between the allocation area in the WLP and the application area have not been explained in detail.*

[3] Nottingham and Nottinghamshire Waste Local Plan. 2002

Unfortunately, the text following the summary, and in particular that under the heading "*WYGE Comments*" (paragraphs 2.33 to 2.47), does not follow the same order, or indeed provide any detailed analysis to justify the conclusions listed above.

The following paragraphs within this section go through the five points listed above, cross referencing to the supporting paragraphs in the WYG report, and provide a response.

4.2.2 Waste Local Plan is out of date and application is premature

This is addressed in paragraphs 2.44 and 2.45 of the WYG report, which are reproduced below:

"2.44 The Nottinghamshire Waste Local Plan was adopted in 2002, but only covered the period up until 2004. The plan is now under review and a revised document will be adopted during 2009. Since the old Waste Local Plan was adopted, Nottinghamshire has made significant advances in diverting waste from landfill. New national policy guidance (PPS10) and the Regional Waste Strategy have also been published which both place a significant emphasis on the diversion of waste from landfill, and strongly encourage the recycling and recovery of waste.

2.45 This application is for a large-scale waste disposal facility, which should lie at the bottom of the waste hierarchy and should be seen as a last resort, where there are no other waste management options available. In view of this, and the fact that the review of the last Waste Local Plan will be completed in approximately two years time, it could be considered premature to grant planning permission for this site at this time. To do so would prevent proper strategic consideration of the alternatives for recycling or recovery, or other opportunities for alternative landfill or landraise sites, which may have less damaging environmental impacts than this proposal."

Although the plan period of the WLP expired in December 2004, under the provisions of the Planning and Compulsory Purchase Act 2004, the plan is still the current policy document governing waste management developments. As such, all unexpired land use polices remain in force. In this respect, NCC submitted proposals to the Secretary of State (SoS) setting out the polices to be saved beyond September 2007. The SoS has now responded to NCC approving the "*saved polices*", subject to the deletion of three polices; none of which have a bearing on the current planning application. The allocation of the Bentinck Void in Policy W10.4 of the WLP, together with the supporting text has therefore been saved until the new WDF is adopted.

In saving the allocation at Bentinck, the proposals contained in the planning applications can not be considered to be premature. The ES has clearly set out (in *Section 5*) that there is a need for new landfill capacity within Nottinghamshire for the disposal of residual non-hazardous waste. This assessment takes into account the statutory (and aspirational) recycling and recovery targets, and thus the predicted shortfall would not be at the expense of other waste management facilities higher up the waste hierarchy. Moreover, the predicted shortfall is much greater than the capacity Bentinck could provide: this is recognised in the 2006 Annual Monitoring Report (refer to Section 4.2.3 below), which indicates that even with Bentinck, there would be a shortfall in void capacity across the County. The scale of the development is therefore not of a scale that would prejudice the outcome of the WDF.

Finally, in paragraph 2.45 of the WYG Report, there is potentially an incorrect interpretation of policy (or at best a poor description). It is agreed that landfill is at the bottom of the waste hierarchy and should be seen as a last resort; but the timing of the provision of facilities needs to be reflected. The National Waste Strategy provides that landfill will continue to be needed and thus provided for. The correct emphasis needs to be in respect to residual

waste (*i.e.* waste from which no further value can be obtained – the definition of residual waste will change over time as new recycling/recovery facilities are brought on stream, and thus the quantities will change over time). It should not be seen as only allowing landfill after all recycling/recovery allocations have been taken up and all possible recycling/recovery has been carried out. In this respect, referring to the Nottinghamshire PFI contract for the management of Municipal Solid Waste (MSW), it could be another six years before the new Veolia Energy from Waste (EfW) facility is available. Guidance in the Regional Waste Strategy indicates that it could be as long as ten years before such facilities come on stream.

4.2.3 Regard has not been given to the most recent Annual Monitoring Reports

WYG criticise the Policy section of the ES and state that it has not referred to the latest Annual Monitoring Reports (AMRs) published by NCC, and thus the data quoted is dated. In particular, WYG refer to an AMR published in December 2005 and one published in December 2006. The latter was published some two months after the planning application was submitted, and thus could not have been included.

In relation to the December 2005 publication, it provides limited information, and only relates to MSW. Of particular note is paragraph 3.12, which states:

"*However, despite these improvements [in recycling] the continued growth in the overall quantity of waste and a shortage of available disposal capacity will mean a pressing need to find alternative sites and to increase recycling/recovery capacity*".

The December 2006 AMR covers the period April 2005 to March 2006. Chapter 4 of this publication sets out the Council's performance in managing waste.

At paragraph 4.4, the Chapter comments that the basic principles and assumptions made in the Waste Local Plan remain largely in line with current national policy and guidance. Paragraphs 4.14 *et seq* describe the trends for the period under a number of performance indicators. In this respect:

- MSW production was 442,000t, being slightly lower than the pervious year
- Commercial & Industrial (C&I) waste production was 1.3Mt, being slightly higher than the previous year
- 51% of MSW was landfilled, again a decrease on the previous year
- An estimated 1Mt of C&I waste was landfilled, being a large increase on previous years.

Table 4.2 in the monitoring report shows that 27% of waste within the County is recycled, 11% composted and 11% incinerated. In the previous year the figures were 23%, 11% and 11% respectively. Landfill of MSW arisings has therefore fallen from 56% to 51% within the County.

Of particular note, paragraph 4.55 states:

"If permitted, Bentinck could provide up to an additional 340,000 tonnes capacity per year or around 3.4 million tonnes overall. This would help meet local shortfalls as envisaged in the Plan, albeit much later than planned. However, it would only partially contribute to the longer-term, county-wide needs which will have to be addressed within the Waste Core Strategy. It is estimated that Nottinghamshire could need up to 18 million tonnes disposal capacity for non-hazardous waste up to the year 2021. Existing capacity and the possible addition of Bentinck would provide only around 8 or 9 million tonnes of this".

Finally, paragraph 6.2 (AMR 2006) concludes:

"… Despite improvements in recycling and composting, especially for MSW, there is still a need to provide new landfill capacity to meet expected/ongoing shortfalls"

It is therefore unclear how WYG could conclude that the "*volume of waste landfilled is significantly reducing",* or that *"the most up to date information casts significant doubt on need for landfill currently when compared with the situation up until 2003"*[4]. **The latest AMR clearly states that there will be a requirement for new landfill capacity, even if Bentinck is approved.**

4.2.4 Whether the compost maturation facility or recycling operations comply with green belt policy

National policy on green belts is set out in PPG 2[5], and is considered at *paragraphs 4.20 to 4.25* in the ES. Of note is that mineral developments are considered to be compatible with green belt policy due to their transient nature. In addition to the extraction of mineral, such developments would also incorporate processing plant. Whist the planning applications at Bentinck are not for mineral development, the reclamation of the Tip has similarities in relation to the processing plant. That said, the plant requirement for the inert recycling operations would be on a smaller scale.

At the local level, green belt policy and waste management developments is set out in the WLP at Policy W3.17 and the attendant paragraphs 3.54 to 3.58.

Paragraph 3.55 acknowledges the guidance in PPG 2, stating:

"*Whilst waste disposal is not cited, where mineral extraction is permitted, infilling with waste may be the most acceptable, if not, the only feasible option for reclaiming the land to an after-use appropriate within the Green Belt. Indeed within the Nottinghamshire Green Belt there are a number a reclamation schemes such as at Dorket Head and Burntstump Quarries which fall within this category*"

Paragraph 3.56 adds:

"Waste disposal may also be acceptable where this provides the most effective means for reclaiming other derelict voids to an after-use appropriate within the Green Belt. The reclamation of other areas of derelict and degraded land by land raising is not considered appropriate, as reclamation should normally be possible without the need to import waste".

Whilst paragraph 3.57 considers ancillary developments:

"Where waste disposal is permitted, then other associated waste management development may be justified. … Such developments can be considered appropriate providing they are linked to the life of the disposal operations (energy recovery schemes may, by necessity, have a longer life than the disposal operations), promote sustainable development and in terms of location, design and materials do not have an unacceptable impact on the open character of the Green Belt".

Policy W3.17 therefore provides:

"Planning permission will only be granted for waste disposal in the green belt where this represents the best option for reclaiming mineral workings or other derelict voids to an after-

[4] Paragraph 2.43. *Bentinck Tip and Void - Detailed Assessment of Planning and Need Issues Submitted by Waste Recycling Limited"* dated March 2007

[5] Planning Policy Guidance Note 2 "*Green Belts*": 1995

use appropriate to the green belt and where there is no unacceptable impact on the open character of the green belt during the life of the operations. Proposals for other associated waste management facilities will only be permitted where they are:

(a) closely linked to a disposal site;

(b) related to the life of the disposal operations and;

(c) promote sustainable waste management practices and;

(d) have no unacceptable impact on the open character of the greenbelt in terms of location, design and materials."

WYG has queried whether the compost maturation facility and aggregate recycling operations complies with green belt policy. As has been stressed throughout the ES, these operations are ancillary to the reclamation of the Tip. They therefore fall to be assessed against the four limbs (a to d) of the policy:

(a) it has been stressed that the compost maturation and aggregate recycling operations are directly linked to the reclamation of the Tip. For the former, organic wastes that have already undergone an in-vessel composting process off site would be imported for maturation and subsequent use as a soil forming material. At present, there are few, if any soil resources within the Tip area. In order to meet the increasing recycling and recovery targets, it will be necessary to invest in new technologies, such as in-vessel composting, to compliment the current collections of dry recyclables. In accordance with the general hierarchal approach to locational policy, the preferred location for such facilities will be on brownfield land within urban areas; *i.e.* close to the source of waste arisings. However, such land will be at a premium, and thus it may not be desirable (or sustainable) to utilise this land for maturation. For the aggregate recycling, it is proposed to screen imported inert wastes for materials that could be crushed to produce secondary aggregates: there would be a demand within the site for such material for haul roads and any excess would be exported off site as a general fill.

(b) Both operations would be linked to the life of the reclamation works. On completion of the reclamation works, they would be removed.

(c) As alluded to above in (a), the location of the maturation facility within the site allows for a more sustainable use of brownfield land, reducing the pressure to release greenfield sites. For the aggregate recycling operation, this would ensure that recyclable materials are not deposited within the Tip, reducing the demand on primary aggregates.

(d) The design of the two facilities, and their location within the site, has been carefully assessed in the ES (*Section 10* refers).

It is therefore considered that the ancillary operations fully accord with the aims of Policy W3.17.

4.2.5 European Directives

At paragraph 2.33 WYG comment that the scoping report requires consideration of "*applicable European Directives, national and regional planning guidance/strategies …*", however, the ES only makes one reference to one EU Directive. "*Therefore insufficient emphasis or importance has been placed on the wording of the scoping opinion*".

This is a sweeping statement. The key word in the scoping opinion is "*applicable*". Section 54A of the Town and Country Planning Act 1990 and Section 38 of the Planning and Compulsory Purchase Act 2004 require development to be in accordance with the Development Plan, which does not comprise EU Directives. It would only be necessary to consider an EU Directive if the application was not in accordance with the Development Plan, or they were material to why the Development Plan should be ignored. The main EU Directives on waste have been translated into national legislation and are predominantly covered under the PPC regime. A summary of European Directives is set in the Regional Waste Management Strategy[6] (pages 12 to 13) which are reproduced in Annex 4/1.

4.2.6 Application site does not reflect the allocation in the WLP

WYG query the difference between the application site and the allocation shown in the WLP. WYG state in paragraph 2.47 "*These changes should have been explained in detail as they could have ramifications with regard to the proximity of housing to the added areas and also be discussed to ascertain whether the variations are sufficiently different from the allocated area to make the comparisons between the two areas untenable*".

The proposed reclamation works for the Tip and the Void are wholly within the extent of the allocation shown on Inset No. 13 in the WLP. For the area to the north of Salmon Lane, there are three areas where the application site differs from the area shown on the Inset plan. One area, located at the north western corner of the application site (amounting to 12.64ha) was omitted as it has been restored and is in agricultural use and outwith the ownership of the applicant. A second area, measuring 0.34 ha, located between the Tip and Boggs Farm SSSI, was also omitted for similar reasons. The third area (amounting to 6ha) is located adjacent to the eastern boundary and was added purely to reflect land ownership and allow flexibility should any off site mitigation works be required as a part of consultation (*i.e.* additional newt ponds). It can therefore be seen that there is a net reduction of nearly 7ha in the area. Finally, to the south of Salmon Lane, the "*large area to the south*" encompasses the access road corridor, which was envisaged in the WLP: paragraph 10.45 (a) clearly states:

"a new purpose built access is required which avoids the use of Salmon Lane for HGV traffic and allows direct access onto the main highway network;"

4.3 Commentary on the AALF Consultation Response

AALF has criticised Section 4 of the ES on a number of points. SLR considers that their arguments are flawed and incorrect. In the main, points raised have been addressed above, However, there are a number of issues that are worthy of further mention.

- The description of the site and the use of the term "*derelict*" has been considered in Section 3 above.

- Not all of the PPSs have as their central core "*sustainable development by ensuring that biological and geological diversity are conserved and enhanced as an integral part of social, environmental and economic development".* This is only PPS9, which has been addressed in *Sections 4* and *13* of the ES. It is more correct to state that the central core to the PPSs is "*sustainable development*", which will include *inter alia* the management of waste.

[6] East Midlands Regional Waste Strategy: EMRA January 2006

- It is considered that despite the time that has passed, the overall basis for the WLP is still sound and accords with current policy, and in particular PPS10. This is recognised in the AMRs. Moreover, the ES has considered the implications of Veolia's proposed EfW facility, together with *iner alia* the possibility of the third line at Eastcroft, in *Section 5*, and still concludes that there will be a need for the release of further non-hazardous void. Again, this is reflected in the AMR. The release of void at Bentinck would not therefore prejudice the movement of waste up the waste hierarchy.

- We do not believe that there will be a shortfall in void capacity in the east of the county: this is currently served by Staple landfill at Newark.

- Ashfield is not the 11th best performing authority in relation to recycling; it is nearer 111th.

- Rail transportation of waste from within Nottinghamshire would not be feasible. Rail is used where there is a substantial distance and volume of waste to be transported, for instance, the export of waste from London to other counties in the South East region.

4.4 Proposed Changes to the ES

To assist in clarifying the local policy context for waste related development within the green belt, it is proposed that the following text is inserted after paragraph 4.93:

4.93.1 Green belt policy and waste management developments is set out in the WLP at Policy W3.17 and the attendant paragraphs 3.54 to 3.58.

4.93.2 Paragraph 3.55 acknowledges the guidance in PPG 2, stating:

"*Whilst waste disposal is not cited, where mineral extraction is permitted, infilling with waste may be the most acceptable, if not, the only feasible option for reclaiming the land to an after-use appropriate within the Green Belt. Indeed within the Nottinghamshire Green Belt there are a number a reclamation schemes such as at Dorket Head and Burntstump Quarries which fall within this category*"

4.93.3 Paragraph 3.56 adds:

"Waste disposal may also be acceptable where this provides the most effective means for reclaiming other derelict voids to an after-use appropriate within the Green Belt. The reclamation of other areas of derelict and degraded land by land raising is not considered appropriate, as reclamation should normally be possible without the need to import waste".

4.93.4 Whilst paragraph 3.57 considers ancillary developments:

"Where waste disposal is permitted, then other associated waste management development may be justified. … Such developments can be considered appropriate providing they are linked to the life of the disposal operations (energy recovery schemes may, by necessity, have a longer life than the disposal operations), promote sustainable development and in terms of location, design and materials do not have an unacceptable impact on the open character of the Green Belt".

4.93.5 Policy W3.17 therefore provides:

"Planning permission will only be granted for waste disposal in the green belt where this represents the best option for reclaiming mineral workings or other derelict

voids to an after-use appropriate to the green belt and where there is no unacceptable impact on the open character of the green belt during the life of the operations. Proposals for other associated waste management facilities will only be permitted where they are:

(a) closely linked to a disposal site;

(b) related to the life of the disposal operations and;

(c) promote sustainable waste management practices and;

(d) have no unacceptable impact on the open character of the greenbelt in terms of location, design and materials."

Whilst not considered essential, the commentary set out above in Section 4.2.3 in relation to the two AMRs referred to by WYG does help in setting the background to the need for additional landfill void, demonstrating that there has been no significant change despite increased levels of recycling.

It is therefore proposed that after *paragraph 4.97* in *Section 4*, the following paragraphs are inserted:

Annual Monitoring Report (December 2005)

In relation to the December 2005 publication, it provides limited information, and only relates to Municipal Solid Waste (MSW). Of particular note is paragraph 3.12, which states:

"*However, despite these improvements [in recycling] the continued growth in the overall quantity of waste and a shortage of available disposal capacity will mean a pressing need to find alternative sites and to increase recycling/recovery capacity*".

The December 2006 AMR covers the period April 2005 to March 2006. Chapter 4 of this publication sets out the Councils performance in managing waste.

At paragraph 4.4, the Chapter comments that the basic principles and assumptions made in the Waste Local Plan remain largely in line with current national policy and guidance. Paragraphs 4.14 *et seq* describe the trends for the period under a number of performance indicators. In this respect:

- MSW production was 442,000t, being slightly lower than the pervious year
- Commercial &Industrial (C&I) waste production was 1.3Mt, being slightly higher than the previous year
- 51% of MSW was landfilled, again a decrease on the previous year
- An estimated 1Mt of C&I waste was landfilled, being a large increase on previous years.

Table 4.2 in the monitoring report shows that 27% of waste within the County is recycled, 11% composted and 11% incinerated. In the previous year the figures were 23%, 11% and 11% respectively. Landfill of MSW arisings has therefore fallen from 56% to 51% within the County.

Of particular note is paragraph 4.55, which states:

"If permitted, Bentinck could provide up to an additional 340,000 tonnes capacity per year or around 3.4 million tonnes overall. This would help meet local shortfalls as envisaged in the Plan, albeit much later than planned. However, it would only partially contribute to the longer-term, county-wide needs which will have to be addressed within the Waste Core Strategy. It is estimated that Nottinghamshire could need up to 18 million tonnes disposal capacity for non-hazardous waste up to the year 2021. Existing capacity and the possible addition of Bentinck would provide only around 8 or 9 million tonnes of this"

Finally, paragraph *6.2 (AMR 2006) concludes:*

"… Despite improvements in recycling and composting, especially for MSW, there is still a need to provide new landfill capacity to meet expected/ongoing shortfalls"

5.0 NEED AND ALTERNATIVES

5.1 Introduction

Section 5 of the ES set out a detailed analysis, including numerical modelling, of the likely requirement for landfill capacity up to 2021, taking into account statutory recycling and recovery targets and Landfill Allowance Trading Scheme (LATS). The section also provided a consideration of alternatives, examining:

- alternative waste management techniques or facilities to landfill
- alternative sites to Bentinck for landfill
- alternative designs or ways of developing the Bentinck site as a landfill

As set out in Section 4.1 above, Ashfield District Council commissioned WYG to undertake a detailed assessment of *inter alia* the policy and need implications of the Bentinck planning application. The findings of this assessment are presented in WYGs report "*Bentinck Tip and Void - Detailed Assessment of Planning and Need Issues Submitted by Waste Recycling Limited"* dated March 2007. Sub-sections 5.2 and 5.3 address the issues raised in the WYG report.

In addition, analysis of the need for landfill has been provided by Ken Maffam Associates (KMA) on behalf of Selston Parish Council. This is considered in sub-section 5.4 below.

Finally, AALF provided comments on need and alternatives in their second submission to NCC (May 2007). Having considered their comments, it is SLRs view that through the information contained in the ES, and the responses to WYG and KMA below, the relevant issues rasied by AALF have been addressed.

5.2 Commentary on Need

WYG provide two reasons why the application is flawed in the context of need:

1 *The applicants have not provided sufficient information in this application to allow a balanced assessment to be made of the need for the development for both inert and non-inert waste under Policy W3.1 of the WLP as it has used out of date information.*

2 *The issue of waste importation and exportation of waste in the East Midlands Region has not been considered adequately.*

Again, the paragraphs that follow in the WYG report do not follow a logical pattern to justify the above points. Commentary on the need case is set out in paragraphs 3.22 to 3.46 of the WYG report and so the following paragraphs of this document address the WYG paragraphs as they arise.

5.2.1 Need for Inert Landfill Capacity

Paragraphs 3.22 to 3.30 of the WYG report set out the issues relating to the need for landfill capacity for inert waste.

Within these paragraphs reference is made to the 2005 and 2006 AMRs. Paragraph 3.27 refers to paragraph 4.31 of the 2005 AMR (incorrectly referred to as paragraph 4.32) stating that several inert sites have experienced difficulties in obtaining suitable restoration materials. Paragraph 3.28 than comments that the 2006 AMR suggests that 90% of

Construction and Demolition waste is recycled and that Nottinghamshire landfilled around 340,000t. Finally, paragraph 3.29 refers to the Quarry Products Association (QPA) position statement regarding the need for inert wastes for quarry restoration, which indicates that there is a 1Mt per annum deficit of inert fill within the Trent valley.

There are a number of issues which could be restricting the disposal of inert waste within mineral workings, the most notable being the change in legislation, such as the requirement for a PPC permit and the change in exemptions from PPC permits. In terms of the shortfall of restoration materials, then it is not clear if this relates to inert waste for fill, or soils. At the same time, large areas of mineral workings in the Trent valley were/are restored by infilling with PFA. The EA has reclassified this waste stream, meaning that it is no longer considered to be inert (Para. 4.59, 2006 AMR).

WYG have failed to consider paragraph 4.56 of the 2006 AMR. This states that there are "*only 4 active inert landfill sites within the county*. *Their exact remaining capacity is unknown but is likely to be below the recommended 10 year level set out in PPS10*". Paragraph 4.57 then adds:

"*The Plan did not make any specific provision for new capacity and no additional capacity was permitted within the monitoring period. The Bentinck proposal (noted above) if permitted would provide over 1 million cubic metres of inert waste disposal capacity as part of the overall restoration scheme. This is equivalent to around three year's capacity for the County as a whole*".

Irrespective of the volume of inert waste arising within the County, it is clear that there is a need to reclaim the Tip: it can not be left in its current state in perpetuity. This is reflected in the WLP polices and supporting text (such as W10.4 and paragraphs 10.46 - 10.54). As such, the priority within the County must be to ensure that inert wastes are not diverted to other sites, such as active mineral workings, which could be restored using indigenous quarry wastes and careful design.

5.2.2 Need for Non-hazardous Landfill Capacity

Paragraphs 3.31 to 3.43 set out WYGs comments on the need for non-hazardous landfill. Again, much is made of the lack of consideration to the 2005 and 2006 AMRs.

Paragraph 3.33 refers to the "*Key Findings*" of the 2005 AMR, quoting that 11 new waste management facilities and two extensions were permitted during the period, increasing capacity by 230,000tpa. However, referring to Table 4.2 in the AMR, it is noted that actually 12 new facilities and 1 extension were permitted: half of the new facilities were Sewage Treatment Works. The table shows 4 new recycling facilities (giving 200,000tpa capacity); 1 extension to a composting facility; and 2 new transfer stations (giving 30,000tpa capacity). The transfer stations can not be counted as recycling: paragraph 4.12 of the AMR correctly identifies that 200,000t of new recycling capacity was created for all waste streams.

Paragraph 3.34 correctly identifies that recycling rates increased and that there was a slight reduction in the volume of MSW landfilled (contrary to the "*Significant*" quoted in the summary for planning policy – refer to Section 4.2.1 above).

Paragraph 3.35 refers to paragraph 4.32 of the AMR and that a number of revisions to non-hazardous landfill sites may need to be submitted to counter greater settlement. Indeed. SLR submitted such an application on behalf of WRG for its Bilsthorpe landfill site. SLR has also reviewed other landfill sites within the County, and it is not anticipated that this will lead to a flood of applications.

Paragraph 3.36 compares the figures quoted in the 2004/5 AMR for MSW landfilled with the data contained in *Table 5/9* in the ES. In this respect, 314,000t was landfilled against an estimated 380,000t in *Table 5/9*. It should be noted that predicting the amount of waste arising and being landfilled is inherently complex, and involves a number of assumptions (such as new recycling and recovery facilities coming on stream).

Referring to the notes to *Table 5/9*, between 2006 and 2009 the figures for MSW landfilled is derived from a "*straight line decline*" to the statutory target in 2010. By 2012 it is anticipated that the LATS target will be more stringent than the statutory recycling/recovery target in dictating the maximum amount of biodegradable municipal waste that may be landfilled. It is therefore the figures in 2010 and after that are of importance in considering the requirements for landfill. Before 2010, it is possible that there will be divergence from the data shown in *Table 5/9*: again, this could be due to new facilities coming on stream. However, whilst there may be a large fall in one year, it does not mean that the trend would carry on in subsequent years. Any divergence prior to 2010 would not carry though the table.

In providing for the amount of residual waste that will need to be landfilled over the plan period, then it is prudent to work to the maximum amounts permitted: using lower figures (*i.e.* assuming greater amounts of recycling and recovery) could potentially lead to problems if such facilities do not come forward, or are delayed, resulting in waste being transported greater distances for disposal (as is currently the case in Nottinghamshire).

It is also noted that WYG only comment on the MSW landfilled, which in 2010 represents 42% of all non-hazardous wastes that may be landfilled.

Overall therefore, it is considered that WYGs comments on the accuracy of the predicted shortfall are unfounded, and in the absence of any alternative calculations/modelling, SLR believes its data to provide a realistic basis for future planning in the County.

The second quote in paragraph 3.37 has selectively omitted some text. The phrase should read: "*Remaining capacity at existing non-hazardous landfill sites is only around half of what will be required over the next 10 years.* ***If no new capacity is permitted, this will lead to a serious county-wide shortfall.*** *The situation for inert landfill sites is less urgent but longer-term shortfalls are expected*". (Missing text shown in bold and underlined type face)

A number of other quotes are provided, the relevance of which is not explained. Paragraph 3.40 refers to the recent contract between NCC and Veolia Environmental Services. Referring to 4.11 of the AMR, the contract is "*designed to meet all existing and likely future requirements under LATs*". The implications of the new contract, including additional recycling/recovery capacity has been fully taken into account in the calculations provided in the 2006 ES (as has the possibility of a third line at Eastcroft which is currently the subject of an appeal).

Paragraph 3.41 refers to new facilities approved during the period. It states that "*Nottinghamshire has achieved rates of recycling and composting of household waste 37% above the national targets".* This is a little misleading – the rate achieved by Nottinghamshire is around 37%, which is above the national average. What is also misleading is the reference to the 107,000 tpa of additional waste management capacity: 50,000tpa of which was for new transfer stations, which is not new recycling capacity.

Finally, paragraph 3.43 states that not considering the two AMRs "*casts serious doubt on the accuracy of the figures quoted*". This is a strange conclusion to make when a common theme in the AMRs is the need to find additional landfill capacity. Moreover, WYG have only

queried the accuracy of the MSW figures, which form part of the overall waste stream within the County.

It is noted that despite claiming that the need argument is flawed, no attempt has been made to predict the capacity requirements for non-hazardous landfill over the period to 2021.

5.2.3 Regional Context

Paragraphs 3.44 to 3.46 discuss the county/regional role, referring to the East Midlands Regional Waste Strategy (published in January 2006). Paragraph 3.45 states that 31% of Nottinghamshire's C & I waste stream was exported. Again, WYG claim that not taking the latest Regional Waste Strategy (RWS) into account undermines the ES without providing any explanation.

Paragraphs 5.26 and *5.41 to 5.48* of the ES clearly refer to the RWS (January 2006), whilst Figure 5/1 has been taken from Appendix 6 of the RWS. WYGs comment is therefore wholly unfounded.

Notwithstanding this, it would appear that the issue of imports has been taken out of context. The proposed facility at Bentinck is not intended to be a regional facility, but a local one. However, in view of its proximity to the Derbyshire-Nottinghamshire County boundary, imports from Derbyshire can not be discounted, and indeed, would conform to the proximity principle. The movement of waste within the region is therefore not considered appropriate.

5.3 Commentary on Alternatives

In section 4 of their report, WYG state that:

"*The failure of the applicant to consider changes in the management of waste since 2003 means that it is unclear whether there is any urgent need for new landfill capacity to be found prior to the adoption of the Nottinghamshire Waste Development Framework in 2009. Although, no new alternative sites are available immediately, significant amounts of new void are being created annually from ongoing mineral extraction, and preferable alternatives (such as a new Energy from Waste Plant near Mansfield) are being developed*"

Again, reference is made of the lack of consideration in the 2006 ES to the AMRs published in 2005 and 2006 (refer to Section 4.2.3 above).

Paragraph 4.7 identifies that the annual production of sand and gravel conservatively produces 1.5Mm^3 of void for either inert or non-inert infilling. In the context of non-hazardous landfill, the vast majority of this would not be suitable as it would not comply with EA locational guidance for landfill (being within the floodplain or a major aquifer).

Paragraph 4.10 comments on two of the alternative sites, identifying that an application for Gunthorpe has been withdrawn and that a planning application to extract 7.5Mt of sand and gravel has been submitted in respect of land at Sturton le Steeple. In respect to the latter, the site is situated in the floodplain of the River Trent, and is somewhat isolated from the main areas of void deficiency.

Paragraphs 4.12 refer to the NCC - Veolia contract and paragraph 4.13 mentions that a planning application has been submitted for a MRF at Mansfield. It is not clear how these have a bearing on the issue of alternatives. However, these facilities have been factored into the assessment of landfill capacity requirements, as set out in *Table 5/9* in the ES.

Paragraph 4.14 acknowledges that the closure of sites around Mansfield, Ashfield and Greater Nottingham has caused waste to be transported further afield, and that even if Bentinck was permitted, there would be a shortfall of capacity across the County.

The final paragraph considers that the failure to consider the two AMRs "*has seriously damaged this application*" without providing any real explanation. It then adds "*However, **no new alternatives are currently available***" (emphasis added).

Returning to the summary objection at the beginning of this sub section, earlier sections of this document have considered the information contained in the AMRs and it has been shown that the latest data continues to indicate that there is still a shortage of void capacity for non-hazardous waste within the County. The alternative voids being created by mineral extraction are, in the main, unsuitable for non-hazardous landfill.

5.4 Commentary on Report Produced by Ken Maffam Associates

As set out above, Ken Maffam Associates (KMA) provided a response on behalf of Selston Parish Council. Reference is made within the introduction to the expiry of the "*Plan period*" of the WLP: this has been addressed in the previous section (4.2.2). Paragraph 1.2 states that "*The key issues that we address are landfill requirement and landfill capacity*".

In relation to the "*Requirement for Nottinghamshire*", the report compares figures produced by KMA, SLR and NCC. KMAs figures for landfill requirement are drawn from the LATS requirements and the target used in the Waste Strategy 2000 for C & I waste streams.

It should be noted that the LATS allowance relates to the amount of biodegradable waste that may be landfilled. The designated biodegradability of unsorted MSW in England is 68%, meaning that the actual amount of MSW that could be landfilled would be higher than the published LATS figure. For example, for Nottinghamshire (including the City) the LATS allowance in 2011 is 223kt, which would mean that 328kt of waste could be landfilled.

Turning to the C & I waste stream, the approach used by KMA does not take into account the targets suggested in the East Midlands Regional Waste Strategy or the 2006 draft consultation on Waste Strategy: both of which offer different targets for the amount of C & I waste that should be landfilled. SLRs approach in *Section 5* of the ES used the draft Waste Strategy targets, as they were more stringent (refer to *paragraphs 5.49 and 5.50* of the ES). It is considered that SLRs approach is more realistic and appropriate.

On the issue of landfill capacity, paragraph 3.1 of the KMA report considers that there are "*major discrepancies*" between the data supplied in the ES and data provided by NCC in the draft WDF. The paragraph then states that "*at the moment the capacity pf existing permitted landfill sites, e.g. Burntstump is an unknown*". *Tables 5/1 and 5/2* in the ES clearly set out the remaining void at each of the landfill sites in Nottinghamshire in 2002 and 2006 respectively. Data for the former table was produced by NCC whilst the latter was provided by the applicant. Burntstump landfill has no void remaining and has closed. It is therefore considered that sufficient data has been provided to assess remaining capacity. It is also noted that paragraph 3.1 refers to "*Best Practical Environmental Option*" (BPEO), however, as set out in *paragraph 5.8* of the ES, PPS10 removes BPEO from the planning process.

Despite the discrepancies, there is an area of common ground in that landfill capacity in Nottinghamshire will be used up before 2015: SLR calculates by *c.* 2012, whilst KMA suggest towards the end of the period 2010 to 2015.

Section 5 of the KMA report addresses the situation in Derbyshire. As alluded to above, there appears to be some confusion as to the purpose of the inclusion of data for Derbyshire in the ES. Analysis has been provided to show that there is not sufficient void in Derbyshire to accept waste from Nottinghamshire as a consequence of declining void capacity. Moreover, the analysis has shown the Derbyshire has a shortfall of void capacity, which is acute in the south east of the county, and is seeking to export waste to landfills in Nottinghamshire and Leicestershire.

In view of the proximity of Bentinck to parts of Derbyshire, the ES has suggested that, taking into account the proximity principle, it would not be unreasonable for waste from south east Derbyshire to be exported to Bentinck. This would be more sustainable than transporting waste to Erin Landfill located within the north east of Derbyshire.

Paragraph 5.2 of the KMA report identifies other alternatives available to Derbyshire. It is agreed that waste may also be exported to New Moira Landfill (Leicestershire), Erin and Thurcroft (Rotherham). However, such movements will be governed by proximity. Whilst a site may have planning permission for waste disposal, there is no guarantee that a Pollution Prevention and Control (PPC) permit will be issued by the EA. Indeed, the EA has not issued PPC permits to sites with valid planning permission and a Waste Management License, and is also seeking the early closure of other sites. Finally, it is unlikely that operators of closed gate landfills would modify their sites to accept other waste streams. Notwithstanding the forgoing, the need for the landfill capacity at Bentinck has been justified in the ES based on waste arising in Nottinghamshire, and is not dependant on waste imports from Derbyshire.

The last part of the KMA report (Section 6) considers alternatives. Paragraph 6.1 of the KMA report criticises the ES in simply relying on the existing WLP, despite the scoping opinion issued by NCC stating "*this can include reference to the Plan's own assessment of alternatives …*". In relation to the options suggested by KMA:

Burntstump Landfill has closed and thus there is no possibility of an extension. Other landfill sites in the County are operated by the applicant and consideration has been given to possible extensions. Again, there is little option to release further void, especially of the quantity required to meet the projected shortfall within Nottinghamshire.

As set out in *paragraph 5.19* of the ES, there are currently six landfill sites in Nottinghamshire with appropriate planning permissions and PPC permits to receive non-hazardous wastes. Two of these sites have limited void remaining and thus will close within the next couple of years, meaning that they can not be considered as suitable alternatives. Moreover, waste that has traditionally been accepted at these sites is being diverted to other sites, such as Staple (near Newark on Trent), to husband the remaining void for direct deliveries. Although Dorket Head has a sizable void, and is not too far from the identified shortfall area in the WLP, inputs can not be increased due to the ongoing clay extraction operations, and so again, it can not be considered as an alternative. The remaining sites are located within the northern and eastern edges of the County, at some distance from the waste arisings in Mansfield and Greater Nottingham. In view of this, they can not be considered as sustainable alternatives when considering the additional HGV mileage (and associated CO_2 emissions) involved in transporting the waste.

Table 5/1 in the ES make reference to sites at Fiskerton and Rufford. Neither of these sites are considered suitable for the receipt off non-hazardous waste in view of EA guidance for PPC permits. In the case of Fiskerton, the existing WML is in the process of being handed back, with the site being in aftercare and subject to management agreements. The site at Rufford is a former sandstone quarry and thus is underlain by a major aquifer. It is therefore considered unlikely that the EA would issue a PPC permit for the site.

In the context of other mineral workings, the main deposits worked are for sand and gravel, being either glacial or river terrace. In addition, a number of sites work the Sherwood Sandstone deposit. None of these geological horizons are considered ideal for the deposit of non-hazardous wastes in view of EA guidance. Crushed rock is also produced from a quarry located at Nether Langwith, working the magnesian limestone deposit, which is again classified as a major aquifer.

Referring to the 2006 Monitoring report, no opencast coal production has occurred since the Smotherfly OCCS near Pinxton closed in 1999, and no new proposals are pending within the County.

In terms of clay pits, there are two operations serving existing brickworks within the County: Dorket Head (Ibstock Brick) and Kirton (Hanson Building Products Limited). Consideration has already been given to the former in the preceding paragraphs. For Kirton, reserves are anticipated to last until c. 2019 and it is considered unlikely that this site would be available for landfill before that date (this is also acknowledged by WYG).

It is clear from published planning guidance that the Government is committed to a plan led system, with the Development Plan forming the basis of all planning decisions. Section 54A of the Town and Country Planning Act 1990 and more recently Section 38 of the Planning and Compulsory Purchase Act 2004 (PCPA 2004) confers a presumption in favour of development proposals which accord with the Development Plan (which is now comprises the Regional Spatial Strategy and the Development Plan Documents taken as a whole[7]), unless material considerations indicate otherwise. Sub Section 5 of Section 38 also states that, "*if to any extent a policy contained in a development plan for an area conflicts with another policy in the development plan the conflict must be resolved in favour of the policy which is contained in the last document to be adopted, approved or published (as the case may be)*".

The Waste Local Plan process is the principal statutory framework within which decisions on the size, number and location of essential waste management developments are made. In the case of the Nottinghamshire and Nottingham WLP there was a substantial period of consultation during which a range of alternative and/or additional landfill sites to Bentinck Void were considered, initially by the County Council and subsequently by the Local Plan Inspector at a Public Inquiry lasting for three and a half months in 1999. The Inspector's recommendation, subsequently adopted by the County and the City Councils (subject to minor amendments which are not relevant in this context) was that the Bentinck Void was the only site allocated to meet the identified shortfall in non-inert landfill capacity. To look at any other sites therefore could potentially be seen as a departure from the Development Plan.

The WLP sets out at paragraphs 10.22 *et seq* the options considered by the County Council for meeting the shortfall in void capacity for inert and non-hazardous waste streams. This included using existing mineral workings (Gunthorpe and Bestwood No 1); future mineral voids (Gunthorpe); new opencast coal sites; and unreclaimed colliery tips. The 2003 Monitoring Report has reviewed this assessment of alternatives concluding that the findings of the WLP are still valid.

Whilst the WLP pre-dates PPS10, it is considered that the existing allocation at Bentinck is consistent with the locational policies set out in PPS10, as has been determined through the EIA process.

[7] Section 38(3) Planning and Compulsory Purchase Act 2004

As set out in Section 4.2.3 above the latest AMR concludes (emphasis added) *"If permitted, Bentinck could provide up to an additional 340,000 tonnes capacity per year or around 3.4 million tonnes overall. This would help meet local shortfalls as envisaged in the Plan, albeit much later than planned.* ***However, it would only partially contribute to the longer-term, county-wide needs*** *which will have to be addressed within the Waste Core Strategy. It is estimated that Nottinghamshire could need up to 18 million tonnes disposal capacity for non-hazardous waste up to the year 2021. Existing capacity and the possible addition of Bentinck would provide only around 8 or 9 million tonnes of this"*

In the context of the plan-led system, and in the absence of any alternative sites coming forward, or any other material change in circumstance arising since the adoption of the WLP, it can be concluded that there is no alternative more appropriate than Bentinck Void to satisfy the acknowledged need for new non hazardous landfill capacity.

5.5 Proposed Changes to the ES

Despite the comments made by WYG and KMA it is not considered that any changes to the text of the ES are required.

6.0 GEOLOGY

6.1 Introduction

Section 6 of the 2006 ES addressed the geology of the site, ground conditions and soils. A more detailed assessment of the geotechnical considerations associated with developing the proposed non-hazardous landfill within the Void was submitted as part of the PPC permit application (refer to Section 1 above). In connection with consultation responses, it is the ground conditions at the site that have expressed most concern. In particular, on the instruction of Ashfield District Council WYG prepared a report "*Bentinck Tip and Void: Geotechnical Assessment Report*". From this, it would appear that the report has been aimed at the Stability Risk Assessment (SRA) submitted with the PPC permit application. SLR would normally expect any comments on the submitted SRA to come via the Environment Agency (EA). The WYG report also raises a number of issues that are not of a geotechnical nature, but for ease of reference, are addressed within this Section.

However, as WYGs report has been submitted to NCC as part of ADCs consultation response, consideration to this report is given within this section.

AALF also raise queries over the suitability of the site in relation to the past mining history. It is considered that the information contained in the SRA fully addresses AALFs concerns and thus it is not proposed to respond further.

6.2 Commentary on WYG Report

6.2.1 Section 1 of WYG Report

Point (v) - This is a health and safety issue that would have been addressed at the closure stage for the open cast operation under the Mines and Quarries Regulations.

6.2.2 Section 2 of WYG Report

2nd Paragraph (list of un-referenced reports) – Despite enquires during the preparation of the PPC permit application SLR were not able to obtain copies of these reports. It is not clear if the two IMC reports were finalised or published into the public domain. Notwithstanding this, the outline mitigation/design measures proposed in the ES or SRA are unlikely to change significantly as a result of these reports, as the key geotechnical issues for the site are understood and there would be a detailed design process to be followed prior to implementation. SLR has acknowledged the generally well known issues at the site (*i.e.* side slope instability, presence of shafts, historic underground mining) and concluded that there are no 'fatal flaws' in the current proposals.

3rd Paragraph – It is understood that the current pond water level within the base of the void is at approximately 110m AOD. The capping levels of the four shafts within the development area are summarised within Section 1.2.1 of the submitted SRA and indicate capped levels of between 108 and 101m AOD. The shaft capping levels give a reasonable idea of excavation depth and indicate a maximum level of approximately 9m below the approximate pond surface level.

It is considered possible that the discrepancy is related to some filling in the area subsequent to the issuance of the report (backfilling in areas of the site ceased in 2000). The WYG conclusion regarding the potential for more sources feeding the pond is questionable. It is not clear why more inflow would give rise to a shallower depth.

4th Paragraph - The ES is based upon more recent observations than those contained within the British Coal report (1995). These are, by implication, more relevant than observations made 12 years ago.

5th Paragraph - *Section 6.59* of the ES acknowledges slope instability around the void. *Section 6.71* identifies the potential mitigation measures in outline form, which is appropriate for an ES. Any additional information for the purposes of design would be gathered prior to the detailed design stage.

6th Paragraph - *Section 6.71* of the ES specifically refers to the need to consider excess pore pressures in the assessment of stability and the design of mitigation measures.

7th Paragraph - The rate of drawdown within the void would be carried out in accordance with a protocol such that an appropriate draw-down rate was achieved. The development of a protocol for drawdown would be undertaken during the detailed design phase. It is not the purpose of an ES to describe in detail all of the geotechnical engineering principals that would be applied for detailed design.

8th Paragraph – The culvert has been subject to recent inspection along its full length using man access techniques. This inspection has revealed no significant defects, and has shown that the present condition of the culvert is more than adequate for it's intend use. Furthermore, SLR has proposed a schedule of regular inspections and maintenance in order that the culvert may be maintained to an acceptable standard for the duration of the scheme.

9th Paragraph – The structural integrity of the existing culvert has been checked against current standards using a combination of the original construction drawings and assessment methodologies appropriate for this type of structure. The culvert construction has been demonstrated to be structurally stable.

6.2.3 Section 3 of WYG Report

2nd and 3rd Paragraphs – The locations of the four shafts below the development area are known and their current status (capping etc) is discussed in detail within Section 1.2.1 of the submitted SRA. It is proposed that all shafts below the development area are infilled. A detailed design and method statement for shaft infilling would be derived for the purposes of detailed design.

4th Paragraph – The historic mining activities at the site are summarised in detail within both the ES and Section 1.2.1 of the SRA. Below the development area, underground mining was completed in 1966. Subsequently the void was excavated during opencast operations from 1983 to 1989. As such the loading on the underground mine workings was greater in the past (*i.e.* before the opencast void) than it would be due to filling with waste (domestic waste unit weight is approximately 11kN/m^3 rather than approximately 22kN/m^3 for Coal Measures).

6.2.4 Section 4 of WYG Report

1st Paragraph – In connection with the SRA, it is the EA who is the main consultee. SLR has responded to the EA's PPC application review within the submitted Schedule 4 response documentation. The mitigation/design measures proposed in the ES or SRA are unlikely to change significantly as a result of seeing further reports as the key geotechnical issues are understood and there would be a detailed design process to be followed prior to

implementation. We have acknowledged the generally well known issues at the site (side slope instability, shafts, underground mining) and concluded that there are no 'fatal flaws' in the current proposals.

2nd Paragraph - There are no proposals to significantly re-work the existing tips/slurry lagoons in the northern section of the site.

3rd Paragraph – It is not proposed for any waste slopes to directly abut the Magnesian Limestone. Boreholes on the eastern boundary of the site show that Coal Measures are present on this site boundary. The Magnesian Limestone overlies the Coal Measures deposits and therefore would not be impacted.

4th Paragraph – This point raises mainly hydrogeological rather than geotechnical issues. It has been stated in the ES and the HRA for the PPC Application and subsequent Schedule 4 Response that shallow groundwater within the Coal Measures is flowing locally towards borehole BH90/97 which is in close proximity to the regional fault line. It is considered very likely that this fault may locally influence the groundwater flow direction, and has been assessed accordingly.

As stated above ("*Section 3, 4th Paragraph*"), the loading on faults/mine workings etc prior to opencast extraction would have been greater than during the proposed landfilling.

5th Paragraph - SLR had verbal communications with Carl Banton at the Coal Authority at the time of preparation of the PPC Application (05/12/06) and during the response to the EA's Schedule 4 (14/08/07). The Coal Authority confirmed they would be implementing a scheme to control mine water in the South Nottinghamshire area by long term pumping at Calverton, located to the south of Bentinck, to an overall level of 15m AOD. Under this scheme groundwater levels throughout the Nottinghamshire area will be prevented from rebounding significantly. Therefore, it is considered that minewater rebound is not an issue, particularly as the proposed base of the landfill will be significantly higher (almost 100m) than 15m AOD.

The requirement for long term management of groundwater levels within the Coal Measures is based on the need to prevent the poor quality minewaters associated with the Coal Measures bedrock from impacting the quality of the overlying aquifers, including the Sherwood Sandstone Group. Additionally, long term pumping will be necessary in order to protect surface water quality throughout the South Nottinghamshire area, particularly in light of the Water Framework Directive (2000/60/EC). However, it is stressed by the Coal Authority that groundwater will not be allowed to rebound to a level that will ever affect surface watercourses, due to the basal level of the overlying major aquifers in the area and the elevation of a number of towns within South Nottinghamshire. As the deep groundwater will be controlled by pumping, the groundwater level is likely to remain constant with limited groundwater gradient.

Long term rebound is therefore considered to be extremely unlikely. Based on the discussions with the Coal Authority, it is clear that the shallow groundwater system is not currently controlled by pumping and is not being artificially depressed. Therefore, this supports the conclusion above that there will be no long term rebound of shallow groundwater.

6th Paragraph – In response to the EA's Schedule 4 for the PPC permit application, it has been concluded that the void is flooded due to the diversion of surface water flow of the Cuttail Brook into the void as a direct result of the channel becoming partially blocked. Groundwater levels within the Coal Measures bedrock to the immediate west and north of

the proposed landfill footprint are lower than the water levels in the flooded void indicating there is no inward hydraulic gradient from the Coal Measures into the Void in these parts of the site. Hydrogeological data from boreholes along the eastern perimeter of the void indicate that there is no significant groundwater within the shallow Coal Measures bedrock sequence in this area and therefore significant groundwater recharge into the Void from shallow Coal Measures is not considered to be occurring. With regards to groundwater seepages from glacial channel deposits located in the north-western flank of the void, these are considered to be negligible based on hydrogeological data for boreholes in this area. However, where necessary a backwall drainage system will be installed in order to prevent the build up of hydraulic pressures associated with localised small quantities of perched water in the superficials.

6.2.5 Section 5 of WYG Report

1st Paragraph – The construction of the composting facility including assessment of foundation and overlying slope stability would be considered at the detailed design phase. Any necessary SI work and/or stability analyses would be undertaken during the detailed design phase and would not normally be undertaken for the ES.

6.2.6 Section 6 of WYG Report

Based on the depths mined at site and the proposed basal level of the landfill it is considered unlikely that any excavation work would encounter the unexploded charges. Discussion with geophysical contractors is ongoing to determine the possibility and feasibility of locating the charges, and the associated risk presented by the charges.

6.3 Proposed Changes to the ES

It is considered that the text in the ES, coupled with the more detailed risk based assessment carried out for the PPC permit, are sufficient in assessing the potential impacts. No changes or additions are therefore proposed.

7.0 HYDROLOGY AND HYDROGEOLOGY

7.1 Introduction

Section 7 of the ES and its associated appendices, provide an assessment of the potential impacts upon the water environment. Following a request made by NCC on 20 March 2007, a flood risk assessment (originally prepared for the PPC permit application) was submitted in April 2007.

It should also be noted that the protection of the water environment is an integral part of the PPC permit application. In this respect, a "*Hydrogeological Risk Assessment*" (HRA) has been submitted to the EA.

In respect to assessing impacts upon the water environment, the EA are the main consultee. In their letter of 1 August 2007, the EA objected to the planning applications on the following grounds:

- the extension of an existing deep culvert under a deep waste tip is not considered as a sustainable proposal.
- water levels within the coal measures placing inward pressure on the lining system
- integrity of the culvert over time, and possibility of ingress of leachate and landfill gas
- mine water rebound
- nature conservation (this is covered in Section 13 below)

Again, AALF has provided a response on the Hydrogeology and Hydrology Section of the ES, again questioning the suitability of the site, given the past mining history. Many of the questions raised by AALF are addressed through the PPC regime, and in particular the SRA and HRA. In addressing the concerns of the EA therefore, it is considered that the issues raised by AALF will have been addressed. It should also be noted that there are cases of other landfill sites being located over former mine workings: for instance WRGs Greengairs landfill is located over old coal workings and Bennet Bank landfill is situated over former iron workings.

In connection with the PPC permit application, the EA issued a "*Schedule 4*" notification requesting the submission of further information. In particular, the Schedule 4 notice specified:

"1. Landfill Sustainability and the Cuttail Brook

1.1 We are concerned that the landfill will rely on long term pumping to prevent pollution associated with flooding of the site when either the existing culvert collapses. Therefore please demonstrate that the landfill will be sustainable in the long term through passive site management.

1.2 In your answer to this question please consider the likely time period required until the site no longer has the potential to cause damage to or deterioration of the environment and risk to human health. This must be assessed in the context of the long term pollution potential of the site in the event of collapse of the existing culvert, without the pumping contingency. Please provide an estimation of the time period required before the site would not have to be reliant on active pumping to prevent pollution in the event of culvert collapse.

2. New Culverting of Cuttail Brook

2.1 We unable accept any design involving a culvert through or underneath the landfill mass. The culvert will have a finite design life that will be less than the time to permit surrender. The best engineering and environmental solution would be to locate and maintain the Cuttail Brook separately from the landfill. This would minimise problems associated with :

- *Retro-fitting the culvert when it collapses*
- *Migration of landfill gas into the culvert and associated environmental risks*
- *Ingress of leachate into the culvert*
- *Flooding of the landfill when the culvert collapses*

2.2 Please submit alternative proposals to divert the Cuttail Brook away from the landfill. We are aware that GIS modelling has shown very limited options to divert this watercourse, but we ask that you consider all possible options to keep the brook separate from the landfill. In your response please consider the following strategies:

a) Diversion of the Cuttail Brook away from the landfill and away from the old culvert.

Including, diversion of the Cuttail Brook around the landfill mass and the creation of a new culvert, through the old spoil tip, located further away from the new landfill. If feasible, this option may preserve most of your current landfill void space, some of which may have to be sacrificed if the Cuttail Brook is diverted around the landfill mass to connect up with the existing old culvert.

b) Diversion of the Cuttail Brook around the landfill mass before it connects up with the existing old culvert. Some void space may have to be sacrificed to avoid culverting through /beneath any part of the new landfill.

The above are possible strategies, but we would be happy to look at any other that you consider viable."

In addition, the EA has requested further information in relation to the PPC permit application in their letters of 31 July 2007 (conceptual model, leachate drainage blanket thickness, presence of unrecorded mines) and 9 August 2007 (Flood Risk Assessment). Copies of these letters are included in Annex 7/1 of this document.

Whilst this relates to the PPC permit application, as set out in Section 1 above, there is an inevitable link between the permitting and planning regimes. Also, there are similarities in the issues being raised for the planning and permitting applications. In this respect, the response prepared to the Schedule 4 notice provides sufficient information to address the points raised in the EAs letter of 1 August 2007 regarding the planning application.

As with the FRA, it seems appropriate to submit the Schedule 4 response as part of the planning application. Accordingly, as set out in Section 1, it forms Volume 2 to this submission.

7.2 Commentary on EA response

Notwithstanding the content of Volume 2, specific comments on the EAs letter are set out below.

7.2.1 Flood Risk Assessment

The EA state:

Although the Flood Risk Assessment [FRA] tries to address issues relating to the Environment Agency culverting policy, the extension of an existing deep culvert under a deep waste tip is not considered as a sustainable proposal. The potential for blockages of the extended culvert will increase, contrary to the statements made in the FRA, and the only proposal to mitigate the resultant flooding risk is a highly unsustainable pumping arrangement.

The flood risk assessment prepared in support of the PPC and planning applications considered existing flows in the Cuttail Brook and with a potential allowance for future climate change (design rainfall intensities were increased by 20% for the 0.1% annual probability flood). The flood risk assessment confirmed that the existing culvert beneath Salmon Lane, which has a smaller diameter than the tip culvert, restricted flow in the Cuttail Brook.

It is recognised without a maintenance and monitoring programme the existing Cuttail Brook culvert beneath the colliery spoil tip presents a significant risk to flooding and water quality, and in particular should the culvert collapse:

- it is not clear who would be responsible for funding, organising and undertaking and remedial works following culvert collapse;
- it has been shown that flood water could back up within the existing void and increase the flood risk to Salmon Lane and nearby property;
- the existing habitat, conservation and ecological interest would be lost; and
- there is potential for potential contaminants associated with mine drainage (*e.g.* low pH, metals, chloride and sulphide etc) to be leached from currently 'dry' colliery spoil deposits if flood waters back-up in the current void.

In the very unlikely event of culvert collapse occurring emergency provision for pumping was detailed in the FRA. It is confirmed that the pumping is not considered a long term option for the site but would allow remedial works to be undertaken on the culvert collapse; once complete the pumps would be returned to standby.

It is concluded that development of the current void and associated commitment to maintenance and monitoring of the Cuttail Brook culvert will reduce flood risk and potential impairment of water quality.

The sustainability of the proposed landfill at Bentinck has been fully assessed in Section 4 of the Schedule 4 response (Volume 2). It is considered that the potential for blockages will be much reduced as the culvert will be subject to a comprehensive inspection and maintenance programme, as described in Appendix 5 to the Schedule 4 response (Volume 2). The existing culvert is not subject to a formalised inspection and maintenance programme. The pumping scheme will only be required in the event of a simultaneous blockage and flood event and will only be required until such time as the blockage is cleared.

It is acknowledged that there are statements which say that WRL will "be responsible for maintaining the culvert .... for the lifetime of the development", however there is no indication how this will be done, particularly once the tip has been filled and completed. Such a major

engineering operation has an infinite lifetime, compared to the stated design life of the pipe of 120 years, and hence it will be necessary to replace the culverts any number of times in the future. Carrying out such work beneath a tip site may be a very difficult procedure, with major health and safety implications, and the real possibility that those responsible for the work will no longer exist when the need arises. Responsibility may then fall on the governmental body for the area, which exists at that time.

A comprehensive report on Culvert Integrity which includes maintenance methodologies and remediation/rehabilitation strategies is enclosed as Appendix 5 of the Schedule 4 response (Volume 2 of this submission).

The applicant committed in the FRA to maintaining the culvert for the lifetime of the site. This would be funded by a bond or similar security which is the common means for providing aftercare costs for landfills. To mitigate against potential culvert collapse WRL also committed to undertaking routine inspection and where needed maintenance of the culvert; details of which are presented in Appendix 5 of the Schedule 4 Response (Volume 2).

If culverting were to be accepted, there will be an increase in long term upstream flood risk due to the reliance on a pumping regime as the only method of mitigation, or removal of water from the area. Should the pumping system become inoperable, waters would back up the valley, putting a number of properties at high risk.

It is reiterated that the pumping system would only be required in the event of simultaneous blockage and flood event. Currently there is no formalised inspection or maintenance of the culvert with no emergency provision for pumping. Accordingly it is considered incorrect to state that the proposed development would represent an increase in long term upstream floodrisk. The proposed development represents a sustainable approach when compared to the current scenario.

The proposals do not meet the requirements of our culverting policy and are highly unsustainable.

The proposals have been assessed against the Agency's Culverting Policy and the Agency's landfill sustainability criteria in Sections 2.3 and 4 of the Schedule 4 response (Volume 2).

Although the culverting policy advises against culverting of watercourses, it is allowed if there is no practicable alternative provided a number of safeguards are put in place. Furthermore it is therefore unclear as to why the EA is objecting to the proposed culverting in this application when it did not sustain an objection to either the Terry Adams application or the inclusion of the site in the Waste Local Plan. There has been no apparent material change in Agency policy with regard to culverts since that time.

With regard to sustainability the proposed development was assessed against the sustainability criteria outlined in EA Guidance (see Volume 2) and it was concluded that the Bentinck landfill satisfies the criteria for a sustainable landfill development.

7.2.2 Conceptual model (long-term change)

Current water levels in the coal measures surrounding the void are recorded as being higher than 110m AOD. Water in the void is held at or about 110m by overflow into the open culvert at this time. Blocking off the culvert will permit water levels within the void to rise well above the current levels. The coal measures are largely a mudstone dominated sequence and the general permeability is therefore low. General dewatering of the coal measures

removes water from the workings which can be considered to be a network of pipes and chambers into which water seeps slowly. It does not render all of the coal measures dry as can seen by the recorded water levels surrounding the void.

With high groundwater levels surrounding the void, this will put potential large inward pressures on the lining system of the landfill. This will create severe engineering problems given that we have to keep the leachate levels low within the landfill with increased potential for lining failure.

The site specific information indicates that the local hydrogeological regime in the Coal Measures is not controlled by the water level in the Bentinck Void (the Void) and existing Cuttail Brook culvert. Therefore the proposed development would not significantly change current hydrogeological conditions within the Coal Measures bedrock, and so no rebound of groundwater levels will take place that could lead to instability or basal heave, or overload the proposed groundwater management system which is designed to collect any localised minor seepages from the superficial deposits. The conceptual hydrogeological does not therefore change from that presented within the ES and HRA that has been prepared in support of the PPC Application for the proposed landfill.

These conclusions are based on the following:

- The Void is currently flooded due to the diversion of surface water flow of the Cuttail Brook into the Void. This surface water drainage into the Void is a direct result of the Cuttail Brook channel having become partially blocked near the southern end of the Void.

- The presence of water within the Void is a consequence of this surface water runoff and incident rainfall, the elevation (c.109m AOD) of the overflow invert at the northern end of the Void where it drains into the Cuttail Brook culvert, and the low permeability of the colliery spoil, Glacial Drift and mudstone Coal Measures bedrock that forms the base and sides of the flooded Void, as detailed below:

  - Low permeability colliery spoil is indicated below the western side of the flooded void by the geological borehole logs for BH98/97 and BH104/97. This represents backfilling of the former opencast workings that extended in this area of the site. These logs indicate 10.3m and 4m respectively of made ground, which is described as clay-bound completely weathered mudstone fill. It is noted that a water strike was noted in BH98/97 at a depth of 2.9m bgl. This is considered to represent a localised saturated pocket within the made ground. No water strikes were recorded in BH104/97.

  - Along the eastern side of the Void the geology is also dominated by a mudstone sequence. BH103/97 indicates 3.4m of Boulder Clay, underlain by a mudstone dominated sequence with occasional thin coals to a depth of 35.5m bgl (80.96m AOD). No water strikes were identified during drilling of BH101/97, or BH103/97.

  - To the immediate south of the Void BH 99/97 indicates made ground extending from ground level down to a depth of 21.9mbgl (98.42maOD). This is described as soft to firm very silty clayey mudstone fill with zones of very weak gravel size mudstones. Highly weathered mudstone bedrock is also identified underlying the made ground at the base of this borehole, between 21.9 and 22.3m bgl. No sandstone units are identified within this borehole. A water strike was identified in this borehole at a depth of 20m bgl (100.32m AOD).

In conclusion, the bedrock characteristics around the eastern perimeter of the Void (as described above) indicates that there is no significant groundwater within the shallow Coal Measures bedrock sequence immediately to the east of the Void.

Additionally, it is noted that groundwater elevations within the Coal Measures bedrock to the immediate west and north of the proposed landfill footprint are lower than the water level in the flooded Void, therefore indicating that there is no inward hydraulic gradient from the Coal Measures into the Void in these parts of the landfill footprint. Evidence of these downward hydraulic gradients is as follows:

- BH104/97 is located close to the western edge of the flooded Void. It is screened across the lower section of the colliery spoil made ground and a sandstone horizon immediately underlying the made ground. Consequently it is considered that groundwater levels in this borehole will reflect the higher permeability of the sandstone unit. The groundwater elevations in this borehole have historically been recorded close to the base (c.1m) of this monitoring borehole at c. 107.4m AOD (January 2005), which is below the water level in the flooded Void (c.109.4m AOD in December 2006), indicating downward hydraulic gradients below the western half of the Void.

- BH 90/97 is located approximately 100m to the west of the Void, and this is screened across a sequence of mudstones and sandstone units within the Coal Measures. The groundwater elevation in this borehole is c.100maOD, which is well below the water level in the Void.

- BH102/97 is located in close proximity to the Cuttail Brook culvert and the outflow from the Void. The groundwater elevation within the Coal Measures screened within this borehole ranges between c.106.3 and 106.7maOD, and so is consistently lower than the water levels in the Void. It is noted that BH102/97 is screened across a siltstone / sandstone horizon at 16.7 to 19.5mbgl (91.18 and 93.98maOD), while the remainder of the borehole is dominated by mudstone strata, with its associated low permeability. Therefore there is clear evidence that downward hydraulic gradients exist at this location.

With regard to the EAs concerns in relation to the relatively high water levels in BH093/97 and BH108/97, both these monitoring boreholes are located c.300m up hydraulic gradient of the Void, and so do not reflect groundwater elevations in the immediate vicinity of the Void.

Therefore, in conclusion, it is considered that the monitoring boreholes within the shallow Coal Measures strata show that groundwater is flowing locally toward borehole BH90/97, which is in close proximity to the regional fault line that is identified on the published geological map for the Bentinck area, and which has been noted by other investigations at the site. It is therefore considered very likely that this fault may locally influence the groundwater flow direction. It is also considered possible that the permeability of the Coal Measures bedrock is locally increased due to the presence of the four mine shafts that underlie the proposed landfill footprint, thereby providing increased hydraulic connection and downward drainage within the Coal Measures sequence below the site. The direction of groundwater flow and relative water elevations in the shallow system therefore indicate that local groundwater is not being controlled by drainage into the Void and Cuttail Brook. No groundwater rebound is therefore expected under these conditions.

Review of available hydrological and geological information also indicates that the flow in the Cuttail Brook is dominated by surface water runoff, with very limited baseflow contributions, as follows:

- the catchment geology is characterised by low permeability Coal Measures and Lower Permian Marl;

- the discharge of water in the Cuttail Brook is dominated by a response to rainfall.

There should be no concerns with regard to instability of engineering and basal heave given the following:

- the basal elevation of the engineered mineral liner (i.e. the formation level) will range between c.111m AOD and c.116m AOD, which is above the groundwater elevations within the Coal Measures below the landfill footprint;

- where necessary, a backwall drainage system will be installed adjacent to the engineered mineral liner in order to prevent the build up of hydraulic pressures associated with localised small quantities of perched water in the superficials. This system will be switched off once sufficient waste loading has been placed on the liner to ensure liner stability; and

- the design of the new culvert includes parallel drainage pipes that will run on either side of the main culvert, and will be interconnected with the existing drainage pipes that run parallel to the existing culvert below the northern colliery spoil tips. This drainage will collect any surface water perched on the colliery spoil used to back fill the Void, and which should drain toward the proposed culverted section of the Cuttail Brook.

In conclusion it is not considered appropriate to alter the conceptual hydrogeological model for the site.

With regards to the deep groundwater system, the Coal Authority[8] has confirmed they will be implementing a scheme to control mine water in the South Nottinghamshire area by long term pumping at Calverton, located to the south of Bentinck. At present groundwater is artificially depressed to a level of -350m AOD, and is slowly recovering.

The Calverton Scheme will control the mine water levels at approximately -10m AOD to -30m AOD, with an overall aim of long term control of water levels to +15m AOD. Under this scheme groundwater levels throughout the South Nottinghamshire area will be prevented from rebounding significantly, given the hydraulic connectivity throughout this part of the Nottinghamshire Coalfield via the former laterally extensive workings. (This is supported by work completed by others, including the British Geological Survey[9]).

The requirement for long term management of groundwater levels within the Coal Measures is based on the need to prevent the poor quality and mineralised minewaters associated with the Coal Measures bedrock from impacting the quality of the overlying aquifers, including the Sherwood Sandstone Group. Additionally, long term pumping will be necessary in order to protect surface water quality throughout the South Nottinghamshire area, particularly in light of the Water Framework Directive (2000/60/EC). However, it is stressed by the Coal Authority that groundwater will not be allowed to rebound to a level that will ever affect surface watercourses, due to the basal level of the overlying major aquifers in the area and the elevation of a number of towns within South Nottinghamshire. As the deep groundwater

[8] Telephone conversation with Carl Banton at the Coal Authority 05/12/06 and 14/08/07

[9] Dumpleton *et. al.* 2001: Mine water rebound in South Nottinghamshire: risk evaluation using 3-D visualisation and predictive modelling.

will be controlled by pumping, the groundwater level is likely to remain constant with limited groundwater gradient.

Long term rebound is therefore considered to be extremely unlikely. Based on the discussions with the Coal Authority, it is clear that the shallow groundwater system is not currently controlled by pumping and is not being artificially depressed. Therefore, this supports the conclusion above that there will be no long term rebound of shallow groundwater.

7.3 Proposed Changes to the ES

As noted above, the issues raised by the EA through the consultation on the planning application have also been addressed though the PPC permit application. Whilst it is not considered necessary to address the issues through the planning process (to avoid duplication), in the interest of clarity and to ensure a holistic consideration of the proposals, it is proposed to include a new appendix to *Section 7* of the ES. This appendix sets out a consideration of the sustainability of the proposals to culvert a section of the Cuttail Brook, and is taken from the submission made to the EA on 13 September 2007, and comprises Volume 2 to this submission.

Within the main body of the ES text, the following needs to be added after *paragraph 7.89* to provide the necessary link to the new Appendix 7/3.

7.89.1 The sustainability of the proposals to extend the culvert and details of the various options considered together with an appraisal of the options is set out in Appendix 7/3 of this ES.

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8.0 AIR QUALITY

8.1 Introduction

Section 8 and the attendant *Appendices 8/1 to 8/3* inclusive within the 2006 ES provided the assessment of the potential impacts upon air quality. The Section considered:

- dust (nuisance and potential health effects including Corona Ions);
- odour nuisance;
- generation and release of bio-aerosols; and
- emissions associated with traffic using the site;

With the exception of the consideration of emissions from traffic associated with the proposed development, the assessment was qualitative. A detailed assessment of the emissions to air, including quantitative modelling, has been included with the application for a PPC permit. In this respect, SLR produced a "*Landfill Gas Risk Assessment*". This includes assessment of Process Contribution (PC) and Predicted Environmental Concentration (PEC) for all potential emissions from the landfill (landfill gas trace pollutants and combustion emissions). The three tier approach includes screening for all pollutants, detailed assessment (GASSIM 2) for those which cannot be considered insignificant, and Tier 3 (AERMOD GIS Prime) for those which are of most potential concern.

In view of the guidance contained in PPS 23 (refer to Section 1 above), and the need to provide quantitative modelling within the PPC permit application, it is considered that this is a sensible approach.

The relevant technical consultees for Air Quality are the District Council EHO, the EA and the Health Protection Agency. Consultation responses to the air quality section of the ES have been received from:

- White Young Green (WYG) "*A Review of the Combined Planning Application and Environmental Statement for the Landfill and Restoration of Bentinck Tip and Void: Volume 2"*
- Air Quality Consultants (AQC) "*Review of Health Assessment for Bentinck Void*"
- Health Protection Agency (HPA) letter dated 19 January 2007

The first two reports were commissioned by Ashfield District Council, and submitted on the Council's part as its formal response to the planning applications. In relation to the WYG report, concerns over the assessment provided in the ES are summarised as:

1. *The assessment is not robust in that there are some significant omissions*

2. *The most significant omissions relate to the assessment of fugitive emissions of PM10 (fine particles)/dust from vehicle movements and landfilling activities on the site which have the potential to have locally highly elevated levels.*

3. *There is also no assessment of cumulative effects of background, road traffic emissions and fugitive emissions.*

4. *There are less significant omissions with regard to M1 widening traffic data, receptor locations and mitigation that will also need to be addressed but are unlikely to alter the overall results of that part of the assessment*

And, in relation to odour:

1. *The assessment methodology is robust*

2. *The results and indicative criteria are alarming in that even with incorporated mitigation measures, it seems inevitable that local residents will be disturbed by odour from the operations*

The AQC report presents the findings of a review of the material contained within the ES dealing with the health implications of the proposal. Referring to the introduction of the report, it provides:

"A critical review of the health assessment taking consideration of the health stresses examined and reported. Consideration whether the modelled data used from a proposed landfill site at 'Clayhanger' is appropriate for Bentinck and whether the consultants agree with the conclusions drawn from the report.

Whether the applicant has fully addressed the concerns of corona ions and whether they agree with the conclusions of the assessment."

The review also takes account of the earlier Scoping Opinion issued by NCC, which said on health:

"There are significant public concerns relating to the impact of landfill operations upon human health/incidence of birth defects etc. The ES should provide a review of the latest evidences and advise including an assessment of the potential effects on health of corona ions and impact of bioaerosols.

Assessment of the health impacts of bulk and trace gases should be carried out, particularly the 28 trace gas contaminants judged by the Environment Agency as being the most significant in terms of their impact on health and/or the human senses. When considering the potential impact of emission to air and water on nearby human receptors the EIA should adopt a recognised methodology such as that contained in the Environment Agency's guidance H1 and both the contribution from the site and general background concentrations should be considered."

Finally, the HPAs letter raises a number of queries regarding the assessments on air quality and health, suggesting that further information should be provided to enable a more detailed assessment to be carried out.

Sub-section 8.2 of this section addresses the issues raised by WYG, whilst sub-sections 8.3 and 8.4 address the points raise in the AQC report and HPA letter respectively.

Whilst AALF provide a lengthy response on Air Quality, as with previous sections (namely Sections 6 and 7) it is considered that addressing the issues raised by WYG, AQC and HPA, will address the relevant issues raised by AALF

8.2 WYG Report

8.2.1 Nuisance Dust

It is noted that WYG consider the assessment to be robust and as a result no response is required.

8.2.2 PM_{10} (fugitive release)

SLR does not agree that the site would generate significant quantities of PM_{10}. In this respect, the development is no different from any other non-hazardous landfill in the context of dust emissions. Key points are:

a) The mitigation methods intended to suppress the release of nuisance dust from haul roads would suppress all releases of particulates (including PM_{10}). This suppression would be undertaken as necessary in accordance with a dust management plan or practices for the site.

b) Non hazardous landfilling activities are not considered to be a significant source of fugitive PM_{10}. This is consistent with environment agency approved models for releases from landfills (such as GasSim) which do not consider that such releases are of concern.

c) The effectiveness of mitigation may be assessed through monitoring in accordance with Environment Agency M17 guidance.

Notwithstanding the above, it is not possible to accurately model emissions from haul roads on a non-hazardous landfill site due to uncertainties relating to input data (numbers of vehicles, speed etc).

In summary, given the ease of mitigating the emission of PM_{10} using tried and tested techniques, coupled with monitoring to establish the efficacy of the mitigation measures, it is considered that the assessment as undertaken in the ES is adequate.

8.2.3 Dust Mitigation Measures

The ES has set out the principal mitigation measures aimed at reducing emissions of dust. The measures referred to by WYG could be classed as "*community relationships*". The applicant, through the Community Meetings has expressed a willingness to maintain links with the community that allow effective communication. Management procedures and responsibilities would be assigned prior to operation of the facility. In the first instance, it is not uncommon for planning conditions to be imposed requiring the submission of a dust management scheme. This would set out the mitigation measures to be adopted, based on the findings of the ES, and any monitoring considered necessary. Secondly, the site would be subject to a PPC permit issued by the Environment Agency. The Environment Agency would require preparation of operational documents (such as a Dust Management Plan) in accordance with Environment Agency guidance document M17 before the site may operate in accordance with any PPC (or equivalent) Permit issued for the site.

It is considered beyond the scope of the ES chapter to propose management procedures and responsibilities. The statement that they will be in place and dust control appropriate before the site may operate is considered adequate in this instance, and can be enforced through suitable planning condition or legal agreement.

8.2.4 Selection of Receptors

It is considered that all potential receptor locations have been assessed. These are described in the detailed modelling for the site, and reproduced below for ease of reference.

Table 8/1
Residential Receptors

Receptor	OS - X (m)	OS - Y (m)	Distance from compound (metres)	Direction from compound (degrees)
Kirby Parks Farm	447835	353497	591	290
Kirby's Lane Farm	447415	353741	1073	294
Croft Cottage	448919	353836	753	044
Wharfs Yard	448986	354274	1143	031
Hollies/High Cliff	447985	354514	1282	342
Two Dale Farm	448407	353021	278	177
Bryngwyn	449327	353345	936	087
Bleakhall farm	449122	353753	861	058
Suvla Bay	448476	353292	85	094
Mushroom Farm	448186	353256	210	258
Larwood PH	449139	353998	1024	047
Arthur Green	449074	354162	1101	038

It is accepted that Old Bleak Hall has been incorrectly identified (and labelled) as Croft Cottage, however the impact at this location has been assessed fully.

8.2.5 Future Baseline

The DMRB assessment used guidance from the DEFRA Local Authority Guidance LAQM TG(03)[10] and Design Manual for Roads and Bridges (DMRB) guidance and screening tool to derive an appropriate appraisal methodology. The traffic data used in the assessment is consistent with the transportation assessment presented in the ES. It was considered that, based on the output of the DMRB model as compared with the criteria for more detailed assessment as outlined in the DMRB guidance, further modelling using an advanced dispersion model was unnecessary in this case. It is noted that WYG comment that "*the significance of traffic emissions is unlikely to change as a result of a more robust assessment...*"

In summary, it is considered that the assessment of transport emissions associated with the proposed development follows appropriate guidance and is appropriately robust given the screening criteria applied.

8.2.6 Odour

Again, WYG acknowledge that the modelling work undertaken used a sensible approach and appropriate methodology. However, WYG have focussed on a 6.1 ou_E/m^3 this level was predicted for Croft Cottage (Old Bleak Hall) in *Table 8/10*. The presentation of the results in that table (i.e. Phase 10 unmitigated) is intended to demonstrate:

a) The need for additional mitigation when filling this Phase; and

[10] Local Air Quality management Technical Guidance. Defra 2003

b) Demonstration (as presented in Table 8/11) of the scale of mitigation which may be achieved through capping the foot of the flank of the active Phase.

Therefore, the 6.1 ou_E/m^3 quoted in the WYG review and the conclusions from this are consistent with the SLR statement in the 2006 ES (*paragraph 1.58 of Appendix 8/1*):

'The results of the dispersion modelling exercise indicate that there will be no exceedence of the C98, 1 hour 5.0 ouE/m3 limit criterion at the identified receptors during filling of Phase 9, with the exception of Croft Cottage. The data period modelled indicates that the frequency and concentration of odour is likely to slightly exceed the limit criterion.'

With mitigation, the average C_{98} impact (using 3 years data) is predicted to be 3.5 ou_E/m^3 as shown in *Table 8/11*.

In summary, it is considered that the WYG review has used the predicted 6.1 ou_E/m^3 out of context. SLR agree that the dispersion modelling highlights the requirement for further mitigation during phase 10 filling. The assessment has investigated this further mitigation and concluded it to be adequate.

8.2.7 Odour Mitigation Measures

As with dust, management procedures and responsibilities would be assigned prior to operation of the facility. The Environment Agency would require preparation of operational documents (such as an Odour Management Plan) before the site may operate in accordance with any PPC (or equivalent) Permit issued for the site.

In summary, it is considered beyond the scope of the ES section to propose management procedures and responsibilities. The statement that they will be in place and odour control appropriate before the site may operate is considered adequate in this instance.

8.3 AQC Report

The scope of the AQC report is defined in paragraph 1.2 as being:

"A critical review of the health assessment taking consideration of the health stresses examined and reported. Consideration whether the modelled data used from a proposed landfill site at 'Clayhanger' is appropriate for Bentinck and whether the consultants agree with the conclusions drawn from the report.

Whether the applicant has fully addressed the concerns of corona ions and whether they agree with the conclusions of the assessment."

The review also considers the submitted information in the context of the scoping opinion issued by NCC.

The AQC report sets out both positive and negative attributes to the information provided. Under the heading "*Review of Health Risk Assessment Report (Appendix 8/3)*" paragraph 2.3 identifies the positive attributes as being:

"a) It identifies the relevant literature and the limitations of this literature. In particular there is very little robust information on emissions from waste facilities, and even less on concentrations around such facilities, and possible health impacts. The strongest evidence for health impacts appears to be related to composting facilities, but only for exposure relatively close to these facilities. There is some evidence of a risk of adverse

birth outcomes related to waste facilities, but this evidence is not very strong, and difficult to apply to current non-hazardous waste landfill sites;

b) *It appropriately concludes that the airborne exposure pathway is the only one that needs to be considered;*

c) *It identifies appropriate pollutants for consideration;*

d) *It concludes that the composting activities would only give rise to a very small health risk for members of the local community. This is a reasonable conclusion, given the nature of the proposed composting operations, the minimum distance of 300m from the nearest residential property, and the greater distances of over 500m and 650m for the residential areas of Selston Common and Kirby Woodhouse respectively;*

e) *It correctly identifies the role of corona ions in charging airborne particles, which may then be deposited more readily in the lung, and goes on to conclude that the issue of corona ions would not be significant in the context of the proposal. This is a reasonable conclusion, given that the particles susceptible to charging are in the sub-micron range, and very few such particles would be created by the waste operations."*

Obviously, these points do not need to be considered further.

In relation to the "*limitations*", the AQC report comments:

a) *"The report does not provide a health impact assessment of the airborne emissions".*

As set out above, a more detailed assessment of airborne emission has been provided in the Landfill Gas risk Assessment submitted with the PPC permit application.

b) *"The report omits any consideration of emissions from a key component of the proposals, namely the deposit of 1.5 million cubic metres of soils and inert wastes for the reclamation of the Bentinck Tip".*

Although the principal emission from tipping will be dust (deposited dust and smaller particles), it is considered that standard mitigation methods applied in the construction and quarrying industries would be sufficient to minimise and release and impact.

c) *"The report omits any estimation of the significance of heavy metal emissions"*

Potential releases of arsenic and nickel are not considered to be significant in relation to landfilling activities. Notwithstanding this, Arsenic releases have been assessed through the GasSim 2 modelling in support of the PPC application for the site. Landfill sites have not been identified as a source of nickel release to air.

d) *"The report screens out PM_{10} using an inappropriate approach".*

The screening of PM_{10} using the 50µg/m^3 limit is considered acceptable by the EU as described within IPPC H1 v6 horizontal guidance note. This guidance note proposes a short term EAL of 50µg/m^3 for purposes of H1 screening.

e) ***"****The report does not undertake any assessment of the numbers of people within different distances of the different operations on the site"*

AQC refer here to The Committee on the Medical Effects of Air Pollution (COMEAP) method. This is an alternative methodology that can be employed to assess the risk to

health from exposure to pollutants in the atmosphere. This methodology operates on the basis of plotting increments in ground level concentrations, determining the number of people who will be affected by these increments, and, subsequently, deriving the number of deaths brought forward and extra hospital admissions by using the COMEAP coefficients.

Distances and directions are described in the GasSim model and the detailed dispersion models for the site. Impact is determined at the nearest potentially sensitive receptors and the concentration compared against the EAL for that pollutant. The assessments therefore follow the PPC rather than COMEAP method

f) *"The screening assessment relies on concentrations modelled around another proposed waste site, Clayhanger in Cheshire."*

Again, more detailed site specific modelling has been carried out and submitted with the Landfill Gas Risk Assessment submitted with the PPC permit application (see Annex 8/1 to this document).

In relation to the "*Comment*" section of the AQC report (paragraph 2.5) there is currently very little information on assessment of impacts associated with $PM_{2.5}$. Therefore, the impact of this pollutant is encompassed within the impacts for PM_{10} until such time that this information becomes available.

Turning to the heading "*Review of Health Aspects of Chapter 8 of the ES*" (Section 3 of the AQC report), again positive aspects are identified, namely:

a) It identifies the distances of the closest receptors around the site to the different operations;

b) It provides information on the prevailing winds, showing that they will blow emissions from the application site towards the residential area of Kirby Woodhouse for the majority of the time;

c) It comments on fugitive dusts, which are not dealt with in the health risk assessment report.

As for the "limitations", we would comment as follows:

Limitation "*d)*" refers to the classification of the sensitivity of receptors. In connection with the detailed modelling in the Landfill Gas Risk Assessment, impacts at all receptors have been compared against the appropriate EAL. This comment therefore makes no difference to the assessment methodology or conclusions.

Limitation "*e)*" discusses '*corona ions'.* Corona ions is also addressed in *Appendix 8/3* of the 2006 ES, which, as set above, AQC considered as being a positive aspect of the ES, commenting "*It correctly identifies the role of corona ions… and goes on to conclude that the issue of corona ions would not be significant in the context of the proposal. This is a reasonable conclusion ..."*

Limitation "*f)*" comments on the reference to the 2004 Defra review on potential health effects of living near to waste management facilities.

For limitations "*g)*" and "*h)*", which consider modelling of emissions, the Landfill Gas Risk Assessment previously referred to cover these points.

8.4 HPA Response

8.4.1 Receptors

It is considered that all potential receptor locations have been assessed. These are described in the detailed modelling for the site contained in the Landfill Gas Risk Assessment (refer to Annex 8/1). For ease of reference, the receptors are set out in Table 8/1 above.

Again, as set out above, it is accepted that Old Bleak Hall has been incorrectly identified (and labelled) as Croft Cottage. However the impact at this location has been assessed fully.

8.4.2 Emissions to air

The "*screening assessment*" and "*detailed assessment*" referred to in the third paragraph of the HPA letter is included in the Landfill Gas Risk Assessment submitted with the PPC permit application, as noted above.

In relation to the comment on PM_{10}, this has been addressed above section 8.2.2 above in relation to the WYG report.

The work undertaken for the PPC permit application, and in particular the Landfill Gas Risk Assessment, takes into account both Process Contribution (*i.e.* that from the site) and Predicted Environmental Concentration (Process Contribution + background) in accordance with the EAs Horizontal Guidance Note "I*PPC H1*" (v6)[11].

For the avoidance of doubt, it is not proposed to compost organic wastes on site. Material imported to the compost maturation facility would already have undergone composting within an enclosed environment off site. As such, ammonia and other emissions referred to in the HPA letter should not be emitted from a well operated maturation process. This would be covered within the PPC permit.

Environment Agency and the Health and Safety Executive (HSE) research shows that bioaerosol concentrations would be at or below acceptable levels at a distance of 250m from the source under most atmospheric conditions. Concentrations also tend to reach background levels within 250m.

8.4.3 Odour

The Environment Agency, rather than the Environmental Health Department of Ashfield District Council, is the recognised authority on odour nuisance from landfill sites. The odour mitigation and impact would therefore be further assessed at the PPC application stage (or regulatory equivalent) and resulted by the Permit. The odour appendix states clearly that every available mitigation measure would be employed.

8.4.4 Health

As set out above, site specific modelling has been provided in connection with the PPC permit application.

[11] Integrated Pollution Prevention and Control: Environmental Assessment and Appraisal of BAT. EA July 2003

8.4.5 Accidents

An Accident Management Plan will form part of the Gas Management Plan for the site, in accordance with Environment Agency Guidance "*Guidance on the Management of Landfill Gas*" (LFTGN03, EA September 2004).

8.5 Proposed Changes to the ES

As noted above, the issues raised by the WYG, AQC and the HPA through the consultation on the planning application have also been addressed though the PPC permit application, and in particular, through the Landfill Gas Risk Assessment. As with the previous Section addressing hydrogeology and hydrology, whilst it is not considered necessary to address the issues through the planning process (to avoid duplication), in the interest of clarity and to ensure a holistic consideration of the proposals, it is proposed to include a new appendix to *Section 8* of the ES. This appendix is the Landfill Gas Risk Assessment (as contained in Annex 8/1 to this document).

Within the main body of the ES text, the following needs to be added to *paragraph 8.75* to provide the necessary link to the new Appendix 8/4. In this respect, the following text should be added to the end of *paragraph 8.75*:

Appendix 8/4 to this ES sets out a risk based assessment of landfill gas emissions in the form of a "*Landfill Gas Risk Assessment*" which forms part of the application for a PPC permit.

Finally, references within *Section 8* of the ES to Croft Cottage should be taken as being Old Bleak Hall.

9.0 INTRODUCTION

Little comment has been made by consultees regarding the Amenity section of the ES (*Section 9*). In this respect, it is not referred to by the EA, Ashfield District Council EHO or the HPA.

AALF do make some representations on Amenity in their submission. In the absence of other consultations received relating to Amenity, and in particular any objection, consideration has been given to the points AALF raise.

9.1 Commentary on AALF Consultation

AALF address amenity under six headings: property values, vermin and pests, odour, litter, perceptions of risk and visual intrusion. In relation to the former, the impact upon property prices is not a material planning consideration. Odour and visual intrusion have been addressed elsewhere in the ES, namely Sections 8 and 12 and thus are not considered further in this section.

In relation to vermin and pests, the ES has recognised that the proposed landfill site has the potential for flies, rats and birds (be it gulls or corvids). This is no different from any other landfill site in the Country. The management of such pests and vermin is an integral aspect of the PPC permit, with management plans prepared and maintained. It is therefore more appropriate to address this through the PPC permit regime.

Concern was originally expressed by East Midlands Airport in connection with the control of gulls on the site. through discussion, the Airport has now removed its objection, subject to the imposition of a planning condition requiring the submission of a bird management plan.

In relation to litter, again the PPC regime requires the control of litter at landfill sites though appropriate management protocols.

9.2 Proposed Changes to the ES

No changes are considered necessary.

10.0 NOISE

10.1 Introduction

Section 10 of the ES provided a quantitative noise assessment, predicting noise levels at the nearest properties to the proposed development areas and compared these against prevailing background noise levels.

The Environmental Health Officer (EHO) at Ashfield District Council is the technical consultee to advise NCC as to the potential for noise impacts to occur.

In NCCs letter of 19 February 2007, the EHO has sought clarification on a number of points.

As set out in Section 1 above, AALF also made representation to every Section of the ES. The comments raised by AALF in connection with noise (submitted in May 2007) are fundamentally flawed and technically incorrect. For instance, AALF has criticised the use of only six receptors: the assessment as considered noise levels at the nearest receptors to the proposed operations. As noise levels decay with distance, then demonstrating that there would be no impact at the closest receptors to the site, then it follows that there would be no impact at properties further away. It is therefore not considered necessary to redress their comments.

10.2 Commentary on EHO Consultation

As set out above, the EHO has sought clarification on a number of points, namely:

- Reference is made to previous noise data obtained in 1997 which is still likely to be relevant to this application. Could you please provide this data for examination?

- Paragraph 10.2 of the Environmental Statement states that background noise levels in the area are likely to be higher now than when noise surveys were last undertaken due to a "likely increase in road traffic". Have calculations been made to show how noise levels have increased and, if so, can they be provided?

- Appendix 10/2 details the cumulative effect noise levels for each noise sensitive location. Can you provide details of how these calculations were derived?

- With reference to the gas utilisation plant, could you state:

    - Where the noise data is derived from?

    - What is this data based on and is there any low frequency element associated with the engines?

    - From what distances were the original noise levels measured at? and

    - What calculation has been used to correct the levels for distance from each noise sensitive property?

- Could you provide details of the times when night-time noise levels were undertaken for table 10/1?

- Paragraph 10.105 states that "noise levels generated by road lorries on the access road adjacent to Two Dales Farm would be in the region of 60.5dB $L_{Aeq,1hr}$, which is equal to the existing background noise levels". Can you provide details of how his figure was calculated?

SLRs response to these queries are:

10.2.1 Previous Noise Data

The following noise data was gathered during October 1997.

Location		Period	Existing Noise Levels dB(A)	
No.	Description		L_{Aeq}	L_{A90}
1	Kirkby Park Farm	Daytime	n/a	n/a
2	Croft Cottage/Bleak Hall Farm	Daytime	55.0	50.5
3	Sulva Bay/Boggs Farm	Daytime	52.6	49.4
4	Leedale Mushroom Farm	Daytime	64.1	60.7
5	Two Dale Farm	Daytime	63.5	60.4

This data was rounded to the nearest half decibel and included in *Table 10/2* of the ES. The data for Two Dale Farm was also used for Kirkby Park Farm although Kirkby Park Farm is closer to the M1 motorway.

10.2.2 "Likely increase in road traffic"

The road scheme in the area has not changed since 1997 however, it is generally accepted that the number of vehicles on roads in general have increased substantially since then. It is, therefore, assumed that background noise levels would have increased marginally since then.

No calculations were made to substantiate this assumption.

It should be noted that this assumption does not have any impact upon the noise assessment, and in particular, the assessment of potential impact upon nearby receptors.

10.2.3 Cumulative Effects

The Cumulative Effects calculation is the logarithmic sum of the worst case noise levels of operations that would be undertaken simultaneously, *i.e.* cell development operations, landfill operations, tip reclamation works and composting operations.

$$CE = 10Log(10^{Leq(cell\ development)/10}+10^{Leq(landfill)/10}+10^{Leq(tip\ reclamation)/10}+10^{Laeq(composting)/10})$$

10.2.4 Gas Utilisation Plant

The noise data used for the gas engines and related equipment was historic data used by SLR measured at a similar installation. This was undertaken some time ago and specific

details regarding any low frequency element or original measurement distances are not available.

The noise levels at the nearby noise-sensitive locations from the operation of the gas engines and related plant was calculated using the proprietary software model CADNA/A which implements the full range of UK calculation methods. The acoustic model for the gas engines at this site includes the screening effects of ground contours between the source and receiver.

10.2.5 Night-time Noise Levels

The night-time noise levels were measured over the following periods:

Croft Cottage	00:45 to 01:00 and 01:53 to 02:08
Leedale Mushroom Farm	01:13 to 01:28 and 02:14 to 02:29
Sulva Bay/Boggs Farm	01:31 to 01:46 and 02:31 to 02:46

10.2.6 Noise Level on Access Road Adjacent to Two Dales Farm

The noise level generated by road lorries on the access road was calculated using the haul road calculation set out in British Standard 5228:1997 *Noise and Vibration Control on Construction and Open Sites*, namely:

$L_{Aeq} = L_{WA} – 33 + 10Log_{10}Q – 10Log_{10}V – 10Log_{10}d$

Where:

L_{WA}	sound power level of the lorries	108dB
Q	number of vehicle movements per hour	34
V	average vehicle speed (km/h)	25
d	distance to the receptor from the centre of the road	75

L_{Aeq} = 108 – 33 + 15.31 – 13.98 – 18.75

= 57.58dB

10.3 Proposed Changes to the ES

It is considered that no changes are required to the ES.

11.0 TRAFFIC AND TRANSPORT

11.1 Introduction

A Transport Assessment of the proposed development was presented in *Section 11* of the ES, and reflected the requisite guidance issued by the Institute of Highways and Transportation.

The Transport Assessment considered the impact of the proposed development on the surrounding road and transportation network. Consideration was given to the routing of vehicles accessing the site and measures to mitigate the effects of site traffic. The section concluded with a summary of the assessments carried out and an overview of the mitigation measures proposed.

In relation to traffic, representations have been received from the Highways Agency (in connection with traffic movements on Junction 27 and the proposed widening of the M1) and NCC highways officers (access design). Details of the consultation responses are summarised in NCCs letter dated 19 February 2007 (see Annex 1/1).

Other organisations commenting on highways matters include the A611 Safety and Traffic Action Group (STAG) and AALF.

Some of the issues raised through the consultation process have already been addressed above in Section 3. This relates to:

- the detailed access arrangements for the junction with the lay-by on the A608
- emergency access into the site off Salmon Lane
- removal of the access road on completion of landfill and restoration works, together with the provision of an access of Salmon Lane for site maintenance works

11.2 Commentary on Highways Agency Response

Referring to NCCs letter of 19 February 2007, the Highways Agency (HA) raise two points:

- request further capacity assessment on Junction 27 and accident data for recent years (post May 2004).
- concerns over impact upon landscaping for M1 widening. Other aspects of widening scheme, such as bridge alterations.

11.2.1 Capacity Assessment

It is prudent for any capacity assessment to include for the modelling that has been undertaken as part of the M1 widening scheme. In view of this, a matrix of future additional turning movements at the junction, was submitted to the HA to add to their model for assessment.

A copy of SLR's letter (dated 19 June 2007) and enclosures is included at Annex 11/1

11.2.2 Accident Data

An updated accident assessment of accident data was also provided in SLRs letter of 19 June 2007. The assessment identifies typical roundabout type accidents, with the vast majority of these being recorded at the M1 junction roundabout and slip roads.

The updated assessment does not affect the original conclusions, in that it is not considered that the additional traffic generated at the application site would have an adverse effect on road traffic accidents in the area.

In an email dated 8 October 2007, the HA commented "*we are content that as the involvement of HGVs in PIAs is low and the anticipated traffic generation is also low, there is no reason to believe that the proposed development will impact on road safety*"

11.2.3 M1 Widening Scheme

Details of the proposed off site landscaping measures have been provided by on behalf of the HA by Ove Arup, proposed as part of the future M1 widening scheme. The off site landscaping works have been superimposed onto the proposed access road layout scheme shown on *Drawing BC 3/15* in the ES, to produce a new drawing. A copy of this drawing, Ref. **BC 11/3,** is contained at the end of this section.

Drawing BC 11/3 clearly shows that the access road and associated works would have a minimal impact on off site landscaping measures, affecting only small areas of proposed off site tree planting, which may be adjusted to suit.

It is worthy of note that the M1 widening scheme itself will be contained wholly within the existing motorway boundary, and thus would not affect any aspect of the access road alignment.

11.3 Commentary on Highway Authority Response

Issues raised by the NCC highways officers have been addressed in Section 3 above (refer to Section 3.2.1and 3.2.2 above). Most notably, having provided the highways officers with a consultation draft of the proposed access design, they have stated that it is wholly acceptable to them. This design is now being formally submitted as part of this submission.

A detailed design for an emergency access has also been provided, which, following the completion of the restoration works, would be modified to enable HGV access to the site associated with the long term management of landfill gas and leachate.

Allied to this, a Stage 1 Safety Audit has been carried out. Referring to the Safety Audit (see Annex 11/1) it comments:

"As part of the Audit the services of a professional HGV instructor were used to ascertain that the lay by could be entered/exited (including moving to the offside lane to U-turn at the roundabout) and he concluded that the manoeuvres could be carried out safely…"

In responding to the Safety Audit (SLRs letter dated 17 July 2007 refers, see Annex 11/1) SLR stated that the minor design changes (softening of kerb radii) would be incorporated into the design. SLR has discounted the suggestion that the lay by should be closed or parking within the lay-by should be restricted, and this has been accepted by the highway authority.

11.4 Public Rights of Way

Again, this has been addressed in Section 3

11.5 Commentary on AALF and STAG Responses

As no objection is being raised by the Councils Highways Officers, then the comments of both AALF and STAG are unfounded. No further consideration is therefore considered necessary.

11.6 Proposed Changes to the ES

The consultation responses in relation to Traffic and Transport have largely been in the nature of requests for further information. In this respect, information accompanying SLRs letter of 19 June 2007 to the HA should be incorporated within the ES as new/replacement Appendices. In particular, the capacity assessment for Junction 27 is included as a new Appendix 11/6, whilst the updated accident data and analysis replaces the existing Appendices 11/2 and 11/5.

In addition, a new Drawing (BC 11/3) should be included within *Section 11* of the ES.

To provide the link to this new drawing, the following text needs to be added to the end of *paragraph 11.35.*

11.35A … In relation to the proposed works in the vicinity of the application site, the actual widening of the motorway would be undertaken wholly within the existing boundary of the highway. Some off site landscaping works are also proposed, details of which are shown on Drawing BC 11/3. This drawing superimposes the off site landscaping works proposed by the Highways Agency onto Drawing BC 3/15 (see Section 3 of this ES), which illustrates the landscaping works proposed by the applicant in connecting with the access road. From this it can be seen that the access road and associated works would have a minimal impact on off site landscaping measures, affecting only small areas of proposed off site tree planting, which may be adjusted to suit.

Other changes (in relation to the NCC highway Officers comments) have been addressed in Section 3 above.

12.0 LANDSCAPE

12.1 Introduction

The potential landscape and visual implications of the reclamation of Bentinck Tip and Void are set out in *Section 12* of the ES. This assessment was based on the principles produced by the Countryside Agency (*"Landscape Assessment Guidance"*, 2002) and the Landscape Institute and Institute of Environmental Management and Assessment (*"Guidelines for Landscape and Visual Impact Assessment"*, Second Edition, 2002).

Responses from the County Councils Landscape Officer are set out in NCCs letter dated 13 March 2007, and WYGs report *A Review of the Combined Planning Application and Environmental Statement for the Landfill and Restoration of Bentinck Tip and Void: Volume 2"* (submitted on behalf of Ashfield District Council).

To seek clarification on the comments raised by the Council's Landscape Officer, a landscape architect from SLR met with Ms H Jones on 29 August 2007 to agree three supplementary viewpoints and other aspects relating to the format and content of the assessment.

12.2 Commentary on the Consultation Responses

Comments raised by NCC and WYG, together with issues discussed at the August meeting, have been considered and where appropriate, have been taken into account in revising the landscape and visual assessment. In terms of the assessment, it should be noted that this ultimately comes down to a matter of professional judgement. In this respect, it is interesting to note that the Council's landscape Officer did not agree with all of the points raised by WYG.

12.3 Proposed Changes to the ES

It is proposed to replace *Section 12* in the ES in its entirety with a revised assessment which takes into account issues raised through the consultation process. The new text is set out in Annex 12/1 to this document.

13.0 FLORA AND FAUNA

13.1 Introduction

An ecological assessment of the development proposal is set out in *Section 13* of the ES, together with *Appendices 13/1* through to *13/24* (comprising *Volume 2* of the ES Appendices).

As set out in *paragraph 13.5* of the ES, the collection of baseline data, evaluation of species and habitats and assessment of impacts follows those guidelines set out by the former Institute of Environmental Assessment[12]. The level of ecological survey work undertaken reflected the scoping opinion issued by NCC.

Consultation responses directly related to the ecological issues at the site were received from the following technical consultees (presented in date order):

- Campaign to Protect Rural England (CPRE) (29th January 2007);
- Nottinghamshire Wildlife Trust (NWT) (29th January 2007);
- Natural England (NE) (7th February 2007);
- County Ecologist, Nottinghamshire County Council (NCC) (20th March 2007);
- White Young Green, on behalf of Ashfield District Council (WYG/ADC) (April 2007); and
- Environment Agency (EA) (29th November 2007).

Further correspondence was also received from NE, NWT and NCC in response to the consultation response from WYG on behalf of ADC. WYG's commentary on the ecological assessment are contained in the report "*A Review of the Combined Planning Application and Environmental Statement for the Landfill and Restoration of Bentinck Tip and Void: Volume 2"*.

A large number of the local organisations also cite ecology, and in particular the habitats within the application site, as a ground of objection. Whilst these comments are valid and relevant to this response, they have not been addressed individually as all the points raised by these individuals have been addressed fully in the technical responses from the consultees listed above.

13.2 Commentary on Consultation Responses

Referring to the technical consultees responses above, the key issues to be addressed are:

- Great crested newt and amphibians (quality of survey data, significance of population, habitat suitability, mitigation, long term stability of population);

[12] Institute of Environmental Assessment (1995) *Guidelines for Baseline Ecological Assessment*. E & FN Spons.

- Water vole (quality of survey data, significance of population, mitigation, potential impacts relating to rats);
- Bats (quality of survey data);
- Birds (quality of survey data, evaluation of sites importance and significance of populations, assessment of impacts, mitigation for loss of habitats);
- Invertebrates (quality of survey data, assessment of impacts, mitigation);
- Reptiles (quality of data, mitigation);
- Badger (quality of survey data);
- Fish (quality of survey data);
- Floral Species (sub-optimal survey season, terrestrial and aquatic species lists);
- Habitats (tufa springs, habitat loss, mitigation for loss, connectivity with designated sites);
- Impacts upon SINC (habitat loss, mitigation);
- Impacts upon adjacent SSSIs (dust, litter, corvids, proximity to development site);
- Location of composting facility;
- Restoration proposals; and
- Long term management of site and retention of created habitats after the 5 years statutory period.

13.2.1 Great Crested Newts & Amphibians

All technical consultees commented on the increase in population size of great crested newt at the site and that, save for the surveys undertaken in 2001 and 2006, the surveys were not undertaken to accepted guidelines and methodologies. As such, at least one further season of survey data was requested in order to undertake a full assessment of the significance of the population at the site. In addition, the unconfirmed presence of palmate newt at the site should be determined.

When determining the significance of the population of great crested newts, it was considered that the proximity of designated sites and their habitats had not been considered. Also, useful guidance in the form of the Habitat Suitability Index (HSI) had not been used to determine the value of the terrestrial habitats for this species.

On the basis of the results presented in the ES, the amphibian assemblage at the site, including the great crested newt population, is considered by NWT, NCC and WYG to be of at least national value and by WYG to potentially be of international value. NE (7th February 2007) agrees that the "*significance of the amphibian population is 'Regional'*" and also states that the site "*qualifies for consideration under the Guidelines for selection of biological SSSIs*". Many other consultees indicated that, pending further survey results, the site could be eligible for designation as a SSSI for its amphibian population.

The mitigation strategy for great crested newt was compiled in 2002. Since this date, the population of great crested newts at the site has increased significantly and as such the mitigation is unlikely to still be appropriate. It has been requested that the mitigation strategy for great crested newt be reviewed and updated on the basis of further survey results. The mitigation proposals should aim to maintain the current population size and favourable conservation status. It was also requested that the amount of open water and wetland habitat created in mitigation is increased to double that which would be lost to the development.

Technical consultees consider that a full justification for the proposed development has not been made. A justification as to why the development is of '*overriding public need*' and why there is '*no satisfactory alternative*' needs to be made in order to adhere to the Habitats Regulations 1994, in order for a licence to be granted to translocate the population of great crested newts at the site.

In addition, NWT question as to whether the translocation of such a large population can be successfully achieved and the conservation status of the population maintained.

Great crested newt survey work was updated in 2007. The baseline survey and assessment is reported in Annex 13/8 to this document. The impacts upon great crested newts and amphibians are evaluated in the updated ES Section contained in Annex 13/1. A mitigation strategy to protect and maintain the population of great crested newts at this site is presented in Annex 13/12.

13.2.2 Water Vole

The site is considered to support a 'healthy population' of water vole, although additional survey for this species has been requested in order to enable a fuller evaluation of the population size at the site. Given the national decline in population size that this species has suffered, it has been requested that the significance of this population at the site is re-assessed. Survey and assessment of the population size should be undertaken to the guidelines within the Water Vole Conservation Handbook.

The technical consultees generally consider the population of water voles at the site to be of at least county significance.

It is requested by some consultees that the proposed mitigation for water voles is reassessed on the basis of updated survey data and that there should be no net loss of water vole habitat.

The EA identified that a large part of the water vole mitigation habitat is located within the flood storage area in the submitted proposal and that the likely fluctuations in water level in this area may make the habitat unsuitable for water voles. It has therefore been requested that the design of the flood storage area is redesigned to accommodate water voles at all water levels, or that the water vole mitigation habitat is created away from the flood storage area.

Consultees also identified that an increase in the population of rats at the site could have an adverse effect upon the population of water voles. Consultees requested that the potential impact of an increase in rat populations is assessed in the ES, along with further details on the mitigation measures in place to control vermin populations.

The water vole survey was updated in 2007 and is reported in Annex 13/3. Impacts upon water voles are discussed in the updated ES Section presented in Annex 13/1 and a mitigation strategy to protect the population of water voles is presented in Annex 13/12.

13.2.3 Bats

Additional survey of the site for the presence of roosting, foraging and commuting bats has been requested. Where health and safety permits, internal survey of the culvert and any other underground features is preferred, although emergence and dawn surveys of these features would be considered sufficient to identify roosting bats, if internal surveys were not possible.

Activity surveys of the site for the presence of foraging and commuting bats have also been requested to identify the value of the site for bats.

Internal survey of Bentinck culvert was undertaken in 2007 and additional survey for foraging and commuting bats was also undertaken. This is reported in Annex 13/4. The impacts upon this species are evaluated in the updated ES chapter presented in Annex 13/1 and a mitigation strategy to protect the populations of this faunal group which utilise the site is presented in Annex 13/12.

13.2.4 Birds

All consultees highlighted the presence of a diverse assemblage of birds at the site, despite an apparent lack of detailed survey effort specifically associated with the application. Surveys for breeding, wintering and passage birds have therefore been requested.

NWT requests that an evaluation of the potential impact of noise upon the populations of birds at this site is undertaken.

WYG considers that the assemblage of birds at the site meets the criteria for designation as a SSSI, although NCC is doubtful of the national significance of the bird assemblage.

The mitigation proposed for birds is not considered to cater for those species which rely upon large unobstructed waterbodies, ephemeral waterbodies, dry grassland and bare ground. It was requested that the mitigation for birds is re-assessed and updated on the basis of more detailed survey information.

Survey work for breeding and wintering birds at this site has been undertaken in 2007 and is presented in Annex 13/6 and 13/7, respectively. The updated ES Section in Annex 13/1 evaluates the impact of the proposed development and a mitigation strategy to protect the assemblage of birds at the site is presented in Annex 13/2.

13.2.5 Invertebrates

The presence of two red data book species and nine nationally scarce species was identified during a single day survey at this site. NWT, NE, WYG and NCC all request that further survey work for invertebrates at this site is undertaken, in order to undertake a full evaluation of the significance of this faunal group at the site.

NWT considers the assemblage of invertebrates at the site to be of at least County significance. WYG considers that the mitigation habitat created would not mitigate for the loss of habitats which support the scarcer species and the mitigation proposals for invertebrates should be re-assessed.

Invertebrate survey has been carried out at the site in 2007 and is reported in Annex 13/10. Impacts upon this faunal group are evaluated in the revised ES Section in Annex 13/1 and a mitigation strategy to protect invertebrates is outlined in Annex 13/2.

13.2.6 Reptiles

NWT considers that the reptile population at the site is of County importance. NE and NCC request that a further season of reptile survey is carried out in order to fully assess the significance of this faunal group.

NE considers that the loss of common lizard habitat (grassland and scrub) has not been sufficiently mitigated for and it is requested that the mitigation for this species is re-assessed. NE considers that the provision of a number of small ponds/waterbodies in the mitigation habitats is however suitable mitigation for the loss of grass snake habitat.

Reptile survey work was undertaken in 2007 and is reported in Annex 13/9. Impacts are assessed in the updated ES Section presented in Annex 13/1 and mitigation to protect the population is presented in Annex 13/12.

13.2.7 Badger

NCC and NE have requested that specific survey for badger be undertaken at the site, given the presence of road kill reported by local residents in close proximity to the site and badger prints within the site, recorded as incidental record of another survey.

Badger survey was undertaken in 2007 and this is reported in Annex 13/5.

13.2.8 Fish

NWT have commented that no assessment on the fish species present within the waterbodies at the site has been made and request that a fish survey is undertaken. NCC recommend that guidance is sought from the EA on the removal of fish populations. The EA response does not highlight any issues relating to fish populations.

No fish survey has been undertaken at the site. However, a strategy to protect the fish present at the site is presented in Annex 13/12.

13.2.9 Floral Species

It is noted by NWT and NCC that a Phase I habitat survey was undertaken in October/November, which is outside the optimal survey period and that annual, ephemeral, ruderal and aquatic plants may be under-recorded. It was requested that all of the site's habitats; including both terrestrial and aquatic; were re-surveyed during a more appropriate time of year and that a full species list for the site is prepared.

Further botanical survey work was undertaken at the site in 2007. This survey work is reported in Annex 13/2 and the impacts of the proposed development upon the floral composition of the site are assessed in the revised ES Section in Annex 13/1. A strategy to protect the flora of the site is outlined in Annex 13/12.

13.2.10 Habitats

WYG considers that the mosaic of habitats within the site meets the criteria for designation as a SINC, although no further clarification as to whether this is the whole site or just part of the site is provided.

The proximity of the site to nationally designated sites (SSSI) is not considered to have been fully evaluated in the ES. WYG and the EA considers that the value of connections between Bentink Void to the two adjacent SSSI's and that the potential for these sites to be designated as one large SSSI has not been fully addressed. The EA highlights that PPS9 states that habitat networks should be protected and strengthened.

The mitigation for the loss of habitats at the site is considered by technical consultees to be insufficient to replace the diversity of habitats which are currently present at the site. Primarily, it is noted that dry grassland, hedgerow and bare ground habitats are not incorporated in the mitigation strategy and that the significance of and loss of 'tufa forming seepages' has not been fully considered. It is requested that the habitats proposed in mitigation and restoration are re-assessed and that areas are given over to natural colonisation of bare spoil, during both mitigation and restoration. It is also noted that calcareous grassland is unlikely to colonise successfully on nutrient rich topsoil, as is currently proposed. It is also recommended that the restoration of Bentinck Tip includes habitats such as bare ground, dry grassland and wetlands for great crested newt.

The restoration scheme has been amended in the light of the consultation responses and is considered in Section 3 above. The ES Section on flora and fauna has been revised to take account of the restoration changes and is presented in Annex 13/1. Evaluation and impacts upon habitats at the site have been revised in this Section.

13.2.11 Impacts upon SINC

The proposed scheme would result in the direct loss of a large part of Bentinck Void SINC. NCC states that development which would result in such a loss would not normally be permitted, unless it can be demonstrated that there are reasons for the proposal which outweigh the need to safeguard the nature conservation of the site.

In addition, NCC refers to the Joint Structure Plan for Nottinghamshire which states in policy 2/1 that the development which would affect the continuity or integrity of landscape features which are of major importance for wild flora and fauna and habitats and species identified on the UK and Nottinghamshire BAP would not be granted unless overriding public interest could be identified.

As previously stated the need for this development is requested to be more clearly explained.

The impacts upon the SINC are addressed in the revised ES Section presented in Annex 13/1.

13.2.12 Impacts upon SSSIs

No direct impacts upon the adjacent SSSIs have been identified, although further information on the likely impact of airborne dust and litter upon these SSSIs has been requested. NCC request further information upon the likely impacts of the increased numbers of gulls and corvids associated with landfilling operations on wildlife in the surrounding area. Where this information is not available, further clarification on the measures which would be employed to discourage these species, would be sufficient.

The impacts upon the adjacent SSSI's are evaluated in the revised ES Section presented in Annex 13/1. In addition, specific impacts relating to the proposed composting facility at the site upon the SSSI's have been assessed in Annex 13/11.

13.2.13 Location of Composting Facility

NCC identify that the proposed composting facility is located in an area which currently contains ponds recorded as supporting GCN and potential alternative locations for this composting facility are requested to be sought, in order to retain and enhance these ponds.

This issue is addressed within the revised ES Section presented in Annex 13/1.

13.2.14 Restoration Proposals

Detailed comments pertaining to the restoration scheme have been provided by the technical consultees. These comments are addressed within Section 3 of this Document and are not repeated here.

13.2.15 Long Term Management

Concerns as to the long-term management of the site, following the 5 year aftercare period have been raised. In particular, a written commitment to the long-term management of the mitigation and restoration habitats is requested. It is also suggested that the long-term security of the ponds proposed as mitigation along the access road to the site is addressed in the ES.

13.3 Proposed Changes to the ES

As alluded to above, it is proposed to replace *Section 13* in the ES in its entirety with a revised assessment which takes into account issues raised through the consultation process. The new text is set out in Annex 13/1 to this document.

14.0 CULTURAL HERITAGE

14.1 Introduction

Within the request for a scoping opinion, submitted under cover of a letter dated 12 October 2004, SLR considered Cultural Heritage to be a Secondary Environmental topic. Referring to NCCs formal scoping opinion (dated 17 November 2004) it is silent on the subject. *Section 14* of the ES therefore provides a desktop evaluation of cultural heritage.

NCCs letter of 19 February 2007 sets out the comments of the County Archaeologist. The County Archaeologist has suggested that a geophysical survey should be conducted along the line of the access road. The council would also like to see a scheme of mitigation, which includes as a minimum, a consistent watching brief with the facility for works to be halted where remains are identified so that they can be fully recorded.

English Heritage has also been consulted: they have not objected, but provide some advice in relation to the "*Fishponds SW of Damstead Farm*" Scheduled Monument.

14.2 Commentary on the County Archaeologist's Response.

In *paragraph 14.63*, the applicant has undertaken to carry out a geophysical investigation along the line of the access road should planning permission be granted. The results of this survey work would inform whether more detailed, intrusive investigation (such as trial trenching) was required. It is quite common for such works to be covered by a planning condition. In this respect, the condition would require the submission of a scheme of archaeological investigation to be approved, and can set out the general criteria the scheme should address. In this respect, a condition was put forward in paragraph 14.63.

The applicant is agreeable to the requirement for a watching brief during the soil strip from the line of the road.

14.3 Proposed Changes to the ES

It is proposed to amend *paragraph 14.63* in the ES to provide more detail regarding the submission of scheme of archaeological investigations.

The text of paragraph 14.63 should therefore be replaced with the following:

14.63A Prior to any construction work taking place, the applicant would submit for the approval of the County Archaeologist, a scheme of archaeological investigation based on relevant guidance and best practice. This would include a geophysical survey along the actual route of the haul road to detect the presence of any bell-pits or other sub surface features. In the event of the access road intersecting any sub-surface remains (such as the pit mound(s) recorded at location 9), it would be appropriate for the remains to be appropriately recorded by further survey (such as trial trenching), photograph or other methods. Finally, the stripping of soils from the line of the road and screen mounds would be subject to an archaeological watching brief, the detail of which would be included within the scheme of investigation referred to above. The watching brief would be undertaken by a suitably qualified archaeologist. It is suggested that the above could be satisfactorily secured by the imposition of a planning condition along the following lines:

"No excavation of soil or subsurface material shall take place in connection with the construction of the access road between points X and Y on Plan Z until s scheme of archaeological investigation has been submitted and approved by the Local Planning Authority. Such a scheme shall make provision for an appropriate geophysical survey (of a type and specification to be previously agreed with the Local Planning Authority) has been undertaken and the results reported to the Local Planning Authority. In the event of significant archaeological remains being discovered, opportunity shall be provided for the appropriate recording of the remains by a suitably qualified archaeologist prior to their removal.